UNIVERSITY OF ALBERTA

AN ETHNOGRAPHIC STUDY OF THE LOOM AND WEAVING OF THE SA'DAN TORAJA OF TO'BARANA'

by

MARIA CHRISTOU

A THESIS SUBMITTED TO THE FACULTY OF GRADUATE STUDIES IN PARTIAL FULFILMENT OF THE REQUIREMENTS OF THE DEGREE OF MASTER OF ARTS

in

CLOTHING AND TEXTILES

DEPARTMENT OF HUMAN ECOLOGY

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Date: 27 Aug. 1997

ABSTRACT

This study documents the loom and weaving techniques in the Sa'dan Toraja village of To'Barana', Indonesia. Participation and observation were used to collect the ethnographic data, which were depicted using photography, illustration, and textiles.

Highland Toraja people weave with cotton on a backstrap loom using a continuous warp, cross sticks or coil rod, and a two part cloth beam. They use the same design motifs and patterns regardless of the decorative technique. However, the loom components vary according to the decorative technique being used.

This study provides technical weaving and loom data that may be compared to other weaving areas with the same type of loom technology and weaving techniques. This information in turn may provide clues of cultural affiliation, and relationships from the present and the past between two, or more groups of people who have weaving as a common cultural and technological trait.

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Chapter One

Introduction

This thesis is an ethnographic description of the loom technology and weaving techniques of the Sa'dan Toraja. The Sa'dan Toraja live in one of the highland regencies of South Sulawesi called the Regency of Tana Toraja (Map 1). South Sulawesi is on the island of Sulawesi, which is located in eastern Indonesia (Maps 2 and 3). The findings for this thesis are the result of ethnographic field work I conducted in the Republic of Indonesia for a period of one year, between 1993 and 1994.

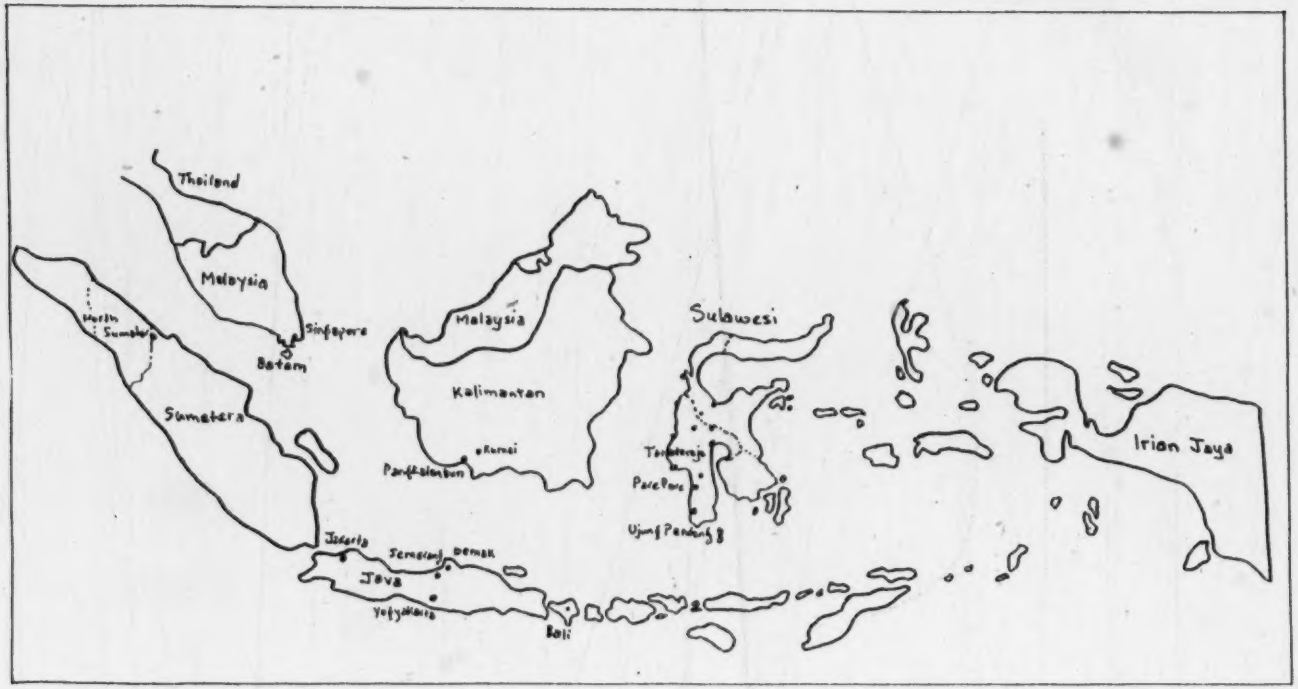
There are four weaving villages in the Regency of Tana Toraja, my research was based on one of these villages called To'Barana' (Map 1). Special consideration is given to the supplementary weft technique because this is the distinctive weaving technique of this region. To'Barana' is known as the centre for traditional weaving.

Theory and Objectives

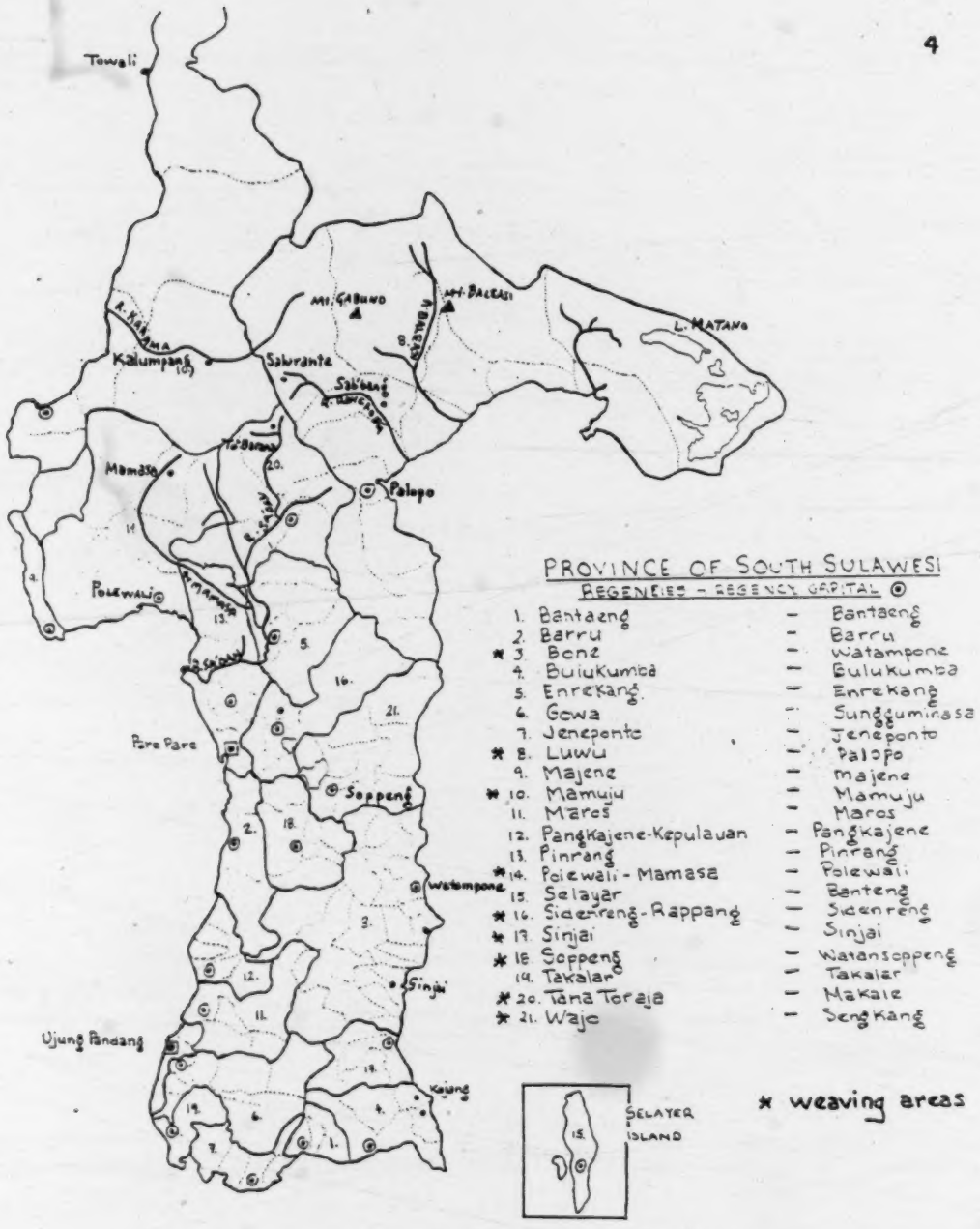
The objective of this thesis was to study and document the loom technology and weaving techniques of the Sa'dan Toraja using my own skills as a weaver as my method of obtaining data. My goal was to record the entire weaving process, as well as technical features of the loom, the weaving techniques, and the resulting textiles.

Junius Bird states that technical data from weaving are important primary references for Andean culture history (1960, 1963). He hypothesized that weaving technology is conservative to change, and therefore, comprises reliable and valid data for evidence of cultural contact. His work is based on archaeological research in Peru, but his ideas may be tested in other areas in the world, such as Indonesia (Niessen, 1993). Yarn and textile production are valid primary sources for research in culture history (Bird, 1960; Bolland, 1979; Frame 1982; Hitchcock, 1991; Maxwell, 1990; Niessen, 1993). "Accurate knowledge of such features as spinning, twist direction, warping procedure, and

Map 1. Regency of Tana Toraja in Province of South Sulawesi



Map 2. Republic of Indonesia



Map 3. Weaving areas in Province of South Sulawesi, Indonesia

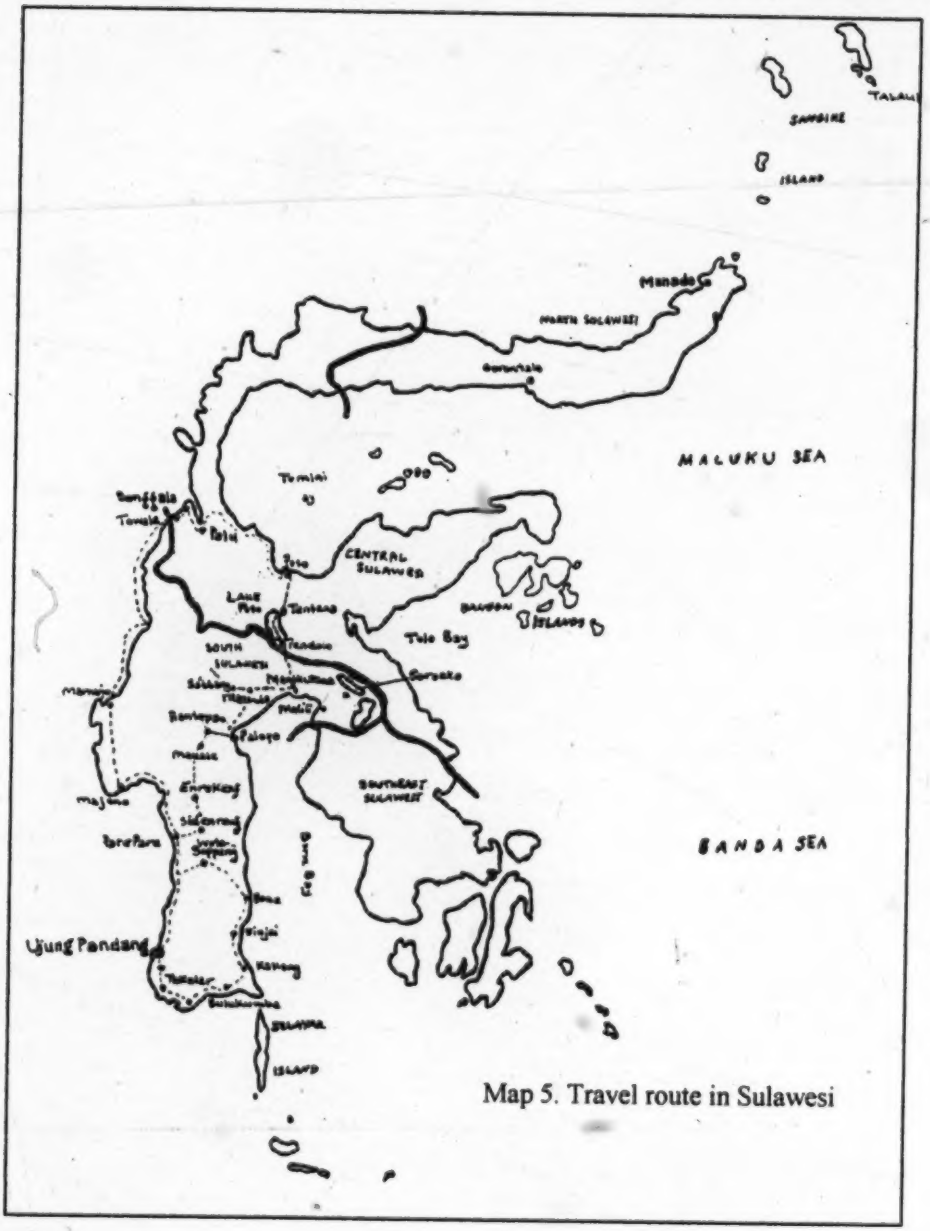
construction details may well serve as significant clues in tracing cultural diffusion and relationships...These features provide specific points of reference for comparison" (Bird, 1960, pp. 1,4). Furthermore, such inquiries into the hypotheses of acculturation and assimilation are validated by "concentrating on the products of a single region" and then comparing them to data from other surrounding weaving regions (Ibid, p. 47). The main difference with his approach and my own, is that his is diachronic, whereas the present thesis is an ethnographic study.

Sandra Niessen's (1985; 1988-89; 1991) research of Indonesian textiles and weaving directed the present thesis into the area of loom technology and weaving techniques. In Niessen's (1988-89; 1991; 1993) research, ethnographic data on weaving techniques are compared sub-region by sub-region from one ethnic group in order to record all the variations of weaving techniques. She is in search of a pattern of technological distribution within one ethnic group in North Sumatra known as the Bataks. In this thesis, I test the cross-cultural application of Niessen's work for the interior highlands of South Sulawesi (Maps 4 and 5).

Mary Frame's textile studies (1982, 1986) are also significant for my own work because they inspired me to research textiles by making textiles myself. I learned about examining weave structures from Frame's research (1982, 1986) and from her personal instruction in 1991 and 1993. She introduced me to textile making and imparted knowledge about yarn and textile structures that benefit the present thesis. I found Frame's textile research hypothesis (1982) and methods (1986) to be similar to my own, and therefore relevant for this thesis. However, like Bird (1960, 1963), Frame's research is based in Peru using archaeological and ethnographic data, whereas my thesis is based on a literature review and ethnographic data from Indonesia.

Frame (1982, 1986) discovered through the process of replicating ancient Peruvian textile techniques, and through fieldwork in Peruvian weaving villages,

Map 4. Ethnic groups in the highland regions of South and Central Sulawesi



Map 5. Travel route in Sulawesi

that the structure and the design of the cloth patterns and motifs reveal the technique of how those same patterns and motifs were made. The patterns and motifs provide "comparative information for checking the reliability of the technical data as indicators of cultural affiliation" (Frame, 1982, p. 4). She suggests that the "variants that are possible at each stage of production, provide a large body of concrete factors that can be described and compared" (Frame, 1982, p. 2). Her hypothesis is that the woven structures and design, may give us an understanding of the weaving technology, as well as clues to cultural affiliation. The hypothesis is documented in Frame's exhibition "Ancient Cloth...Ancient Code," where she uses Peruvian ancient textiles and her own samples of technical replications of the same textiles, to illustrate this idea (Exhibition, 1992, at Museum of Anthropolgoy, University of British Columbia, Vancouver, B.C.).

Rita Bolland's queries into loom technology (1971, 1979, 1991) offer technical advice and insights which have informed the present thesis . In "You need a loom to produce a textile" (1991), she states that the loom is as significant as the textile it produces because it provides information that a textile cannot. "To know how to look at a loom, one must know the basic principles of weaving of that loom type, and the best way to get this knowledge is to do it oneself" because this way we may better "learn the possibilities and limitations of the loom" (Bolland, 1991, p. 183). It is Bolland's work which inspired me to study the loom.

Bolland also hypothesizes that "finding the same type of loom in use among people living in different regions may tell us something about close contact between persons, or groups of persons, or about migrations of groups, which may have taken place long ago or recently" (Bolland, 1991, p. 179). Moreover, she states that two types of looms in one place can give us information about newcomers or old inhabitants.

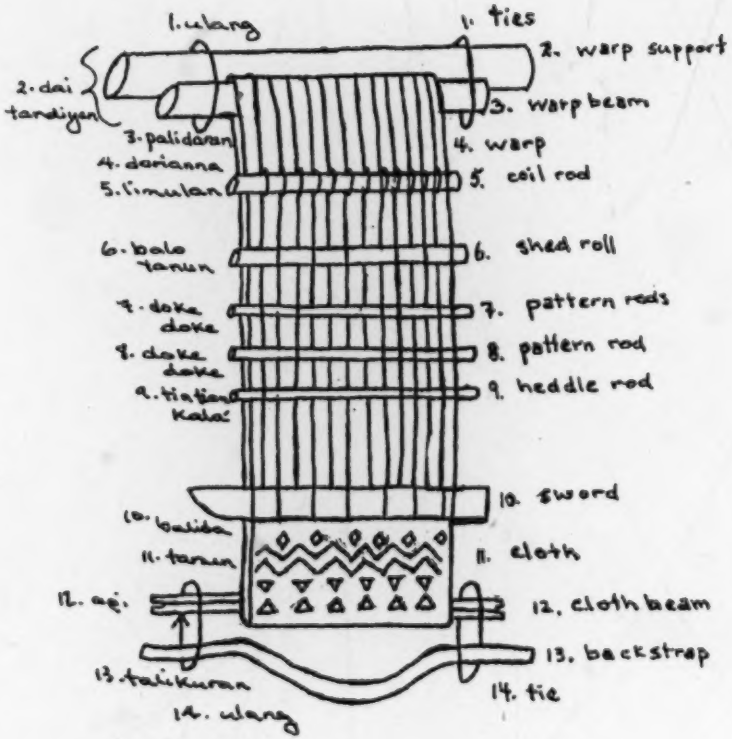
My hypothesis, in accordance with Junius Bird (1960, 1963), Rita Bolland

(1971, 1979, 1991), Mary Frame (1982, 1986), and Sandra Niessen (1988-89, 1991, 1993), is that loom technology and weaving techniques may indicate cultural affiliation and relationships. With "gradual technological innovation different types of looms can sometimes be found within the same area" (Bird, 1960, p. 166). Based on my research on Sulawesi, I hypothsize that the variation in the loom types correlates with the variation of weaving techniques among the Toraja (Maps 4 , 5).

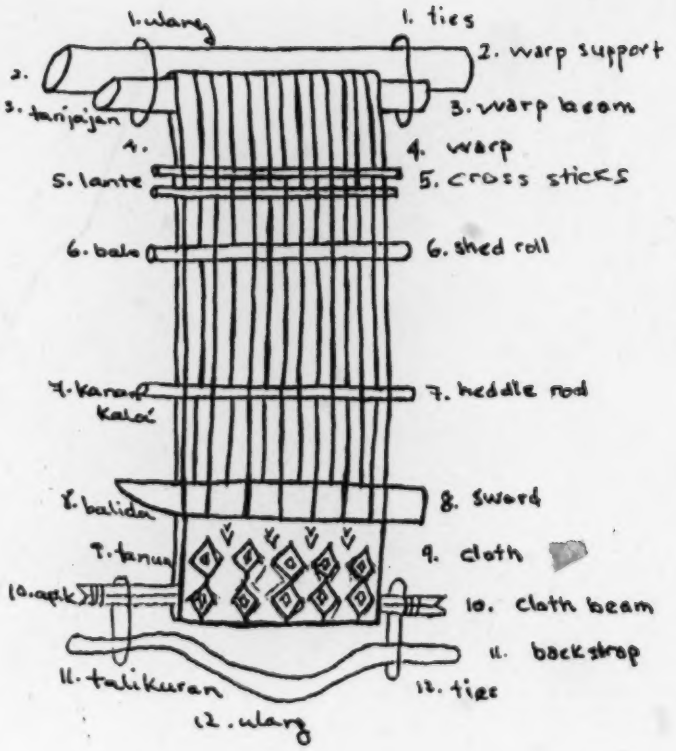
All the Toraja in the highland regions of South and Central Sulawesi use the same loom, materials and designs for weaving textiles (Figure 1a , 1b). The most significant difference in their weaving is the use of different decorative techniques. The Sa'dan Toraja loom has extra heddle rods for weaving supplementary weft patterns and motifs, and a coil rod (Figure 1a). The coil rod maintains the cross, and is used to insert the supplementary weft pattern rods. The To' Rongkong, To' Makki, and To'Mamasa Toraja use cross sticks in their warp in order to maintain the cross (Figure 1b). They use warp ikat to weave patterns and motifs on their textiles. All four groups of Toraja share similar cultural and social customs and beliefs. However, there is variety in the loom technology and weaving that is unique to each area.

There are no data available on the weaving process and technology of the Sa'dan Toraja To'Barana' weavers. Consequently, it is this gap in the literature that my thesis addresses. The present contribution describing the supplementary weft technique may provide useful ethnohistorical information about the Sa'dan Toraja To'Barana' weavers. It constitutes an ethnographic approach to cross-cultural textiles. Moreover, the goal of this thesis is to answer the call for more "comparative cross-cultural documentation of pattern heddles in Indonesia" in order to correlate "float weave technology and patterns to support valid insights into the historical significance of twill weaving in Indonesia" (Niessen, 1993, p. 2).

The technical aspects of weaving were explored in situ. My knowledge of



Figurela. The Sa'dan To'Barana loom.



Figurelb. The To'Rongkong loom.

this subject is based on practical experience as a weaver and a dyer, and when applied to this study greatly enhances the reliability and validity of the data I have collected in the field.

World University Service of Canada, WUSC[1]

In June, 1993 I went to Indonesia as a participant in the WUSC, World University Service of Canada, Seminar on Development in Indonesia. Following this seminar I remained in Indonesia in order to conduct my thesis research. During the period with the WUSC seminar I spent six weeks with thirty other university students, three advisors/professors, and the coordinator. All of the seminar participants were selected from universities across Canada, to partake in a cross-cultural program sponsored primarily by CIDA.[2]

It was while I was on the WUSC Seminar that I first travelled to South Sulawesi and learned of the To'Barana' weavers. Upon noting the unique use of the supplementary weft technique using a backstrap loom, cotton, and a continuous warp with a coil rod, I selected this as my field site. The Sa'dan Toraja loom and weaving had not been researched before by textile experts, nor anthropologists.

My introduction to Indonesian culture and society with the WUSC Seminar on Development in Indonesia, greatly enhanced my knowledge of the overall modern "context" of weaving in Tana Toraja, South Sulawesi.

After the seminar I returned to To'Barana'. I was expecting to have a field

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WUSC is a non-profit, non-governmental organization which involves involves Canadians in international development in Canada and overseas. Founded at the University of Toronto in 1939, WUSC was incorporated in 1957 as the Canadian affiliate of WUS International. WUSC's mission is to link Canadians with colleagues in countries working towards their own development, in order to jointly help alleviate poverty through the sharing of knowledge and to contribute to mutual understanding (WUSC International Seminar, Indonesia, 1993).

[2]Each student had to raise $2300 to pay for a part of the Seminar costs. The balance was provided by a grant from the Canadian International Development Agency, CIDA.

site in a less tourist accessible location, and so at first I did not consider the location to be an "authentic" setting. I saw a commodification of cultural objects, and thought that the textiles were not traditional. Critiques of the concepts of "authenticity" and "traditional" (Graburn, 1976; MacCannell, 1976; Stocking, 1983, 1985) were at the time something I had read about, but not fully understood in the context of field research. Furthermore, I assumed that due to the number of tourists that visit the area, and its commercial visibility I would not find a weaver who would agree to be my weaving teacher.

However, To'barana' was where I would witness the dynamics of culture, and weaving, being affected by a market economy. Moreover, I would be able to evaluate the persistence of a weaving technology in this context. It is well documented in the literature on tourism and textiles that tourism influences the weaver's attitude towards her weaving and alters the types of textiles she weaves (Adams, 1995; Crystal, 1974; Nooy-Palm, 1989; Zerner, 1983). I found that regardless of all the changes in the socio-cultural context of weaving, the actual weaving techniques and the loom technology persist. The weaving techniques and equipment prevail unchanged, and new ideas about design, colour, and materials become incorporated into the already existing corpus (Maxwell, 1990).

Chapter Two
Literature Review

Introduction

My review of the literature indicates that Indonesian weavers have always been directly or indirectly affected by outside influences, especially from mainland Southeast Asia, China, India, and Europe (Fischer, 1979; Gittinger, 1979, 1982; Hitchcock, 1991; Maxwell, 1990). Indonesian highland and lowland peoples have in the past incorporated different materials, designs and techniques into their existing textile making traditions (Maxwell, 1990). Today outside influences continue to be assimilated into the existing textile traditions as they were in the past (Hitchcock, 1991; Maxwell, 1990).

However, there are common attributes of weaving among the diverse ethnic populations in the highland regions of Indonesia. All highland peoples use a backstrap loom with a continuous warp. The weaving medium is cotton; and the weaving techniques are primarily variations of stripes, supplementary warp and supplementary weft (Gittinger, 1979; Hitchcock, 1991; Maxwell, 1990).

Trade as the vehicle for diffusion of weaving technology and techniques

Maxwell (1990) verifies through her extensive and comprehensive review of textile studies in Southeast Asia that: "diplomacy, wars, trade, tribute, marriage and migration have all been important factors helping to spread textiles as objects as well as the knowledge of how they have been made and used" (Maxwell, 1990, p. 397).

Thus, the distribution of textile technology and techniques may have occurred via the inter-island trade relations, or between highland and lowland peoples of the same island, as is the case on Sulawesi (Coedes, 1968; Gittinger, 1982; Pelras, 1993). Trade amongst the island groups was a prime influencing factor for the exchange of ideas, materials and technology (Aveling, 1979; Coedes, 1968; Crystal, 1979; Heine-Geldern, 1984; Hitchcock, 1991; Maxwell, 1990; Niessen, 1993; 1989; Wolters, 1967). On Sulawesi, the Toraja

traded with the Buginese and Makassarese (Maps 4, 6), two of the several diverse culture groups living south of the highlands prior to Dutch colonization (Bigalke, 1984, p. 86). Hence, trade increased the material culture of the highlands because it made available items made of raw materials not found there (Aveling, 1979; Bellwood, 1979; Wolters, 1967).

Despite historical references to regional and ethnic warfare, Bigalke (1984) proposes that the Bugis from the Luwunese Kingdom were not perceived as enemies by the Sa'dan Toraja, but rather as exchange partners. The Sa'dan Toraja respected the significance of the Datu, ruler, and thus payed tribute to him/her. In fact, at the time of the Dutch invasion and subjugation of the Toraja highland area of present Tana Toraja Regency, the daughter of one of the great men of Sa'dan, in the Balusu' area, Ne' Mattundung, was married to a relative of the Datu of Luwu' (Ibid, 1984, p. 92). The puang, or Prince of Balusu', is one of the highest ranking status positions in the northern part of Sa'dan Toraja even to this day (Nooy-Palm, 1975). Balusu' borders on the Luwu' Regency (Map 1).

The Sa'dan Toraja have social and cultural affiliation with the Luwunese today as they did in the past because they share a common ancestor (Mattulada, 1993). Thus, the Sa'dan Toraja paid tribute to the Luwu' Kingdom out of respect for the original ancestor (Bigalke, 1984). Furthermore, noble people from Sa'dan Balusu' married noble people from the Luwu' Kingdom (Bigalke, 1984). These bonds formed trade alliances (Maxwell, 1990).

Trade and religion and its effect on loom technology and textile design

Islam spread to South Sulawesi via the trade routes (Aveling, 1979; Coedes, 1968; Mattulada, 1978; Pelras, 1993). Due to the strategic location of Makassar, the capital city of South Sulawesi now known as Ujung Pandang, both the Catholic Portuguese and the Islamic Indian traders were interested in its conversion so that they could dominate the gateway into the Banda Sea and onwards to the Moluccas, the former famous Spice Islands (Aveling, 1979). "The fall of Malacca was a substantial occurrence..Makassar gained prominence

as a result because of its strategic position on various trade routes" (Kumar, 1979). Religion along with new material goods were introduced through this trade route.

The coming of Islam would alter the social and cultural behaviour patterns of the inhabitants of Sulawesi's lowland regions leaving the interior highlands to their animistic beliefs until the Dutch invasion in 1906 (Volkman, 1985). According to another source, indigenous people's belief systems were not replaced by foreign influences. Instead local people incorporated some of the foreign religious elements (Soejono, 1984, p. 184).

On Sulawesi, the Kingdom of Luwu' was the first to convert to Islam. "They went first to Luwu', still the most prestigious Kingdom in South Sulawesi and converted the Datu (ruler) La Patiare' Daeng Parabung, who on the 15 or 16 of Ramadhan 1013 AH (Feb. 4 or 5, 1605) uttered the syahadat and took the name Sultan Mohammed" (Pelras, 1993, p. 134). Pelras' (1993) hypothesis is that the Muslim traders intended not "only to convert the Luwu ruler because of his remaining prestige but, more essentially, because Luwu', as the cradle of South Sulawesi's nobility, and the central place in the myth of origin, was seen as the key strategic point, the conquest of which would open the whole of South Sulawesi to Islam" (Ibid, 1993, p. 144).

Pelras makes reference to a trade network that linked mainland Southeast Asia to the rest of the archipelago: "...It seems that the propagators of Islam in South Sulawesi were linked to a Champa-Pantani-Aceh-Minangkabau-Banjarmasin-Demak-Giri-Ternate network" (1993, p. 139). From his findings Pelras describes how the people of South Sulawesi, except the highlanders, were exposed to the Islamic faith 125 years before the official conversion of their rulers between 1605 and 1611 (1993, p. 139).

Thus, religion was the primary factor influencing and/or enhancing particular aspects of behaviour patterns, especially in the lowland regions where the trade influence had more impact (Gittinger, 1982; Hitchcock, 1991; Maxwell,

1990; Pelras, 1993). In terms of weaving, religion influenced the types of motifs women choose to weave (Gittinger, 1979; Hitchcock, 1991; Maxwell, 1990). For example, Islam prohibits the use of human and animal figures on any material surface (Maxwell, 1990).

One of the earliest motifs in Indonesian art are the human-like figures and animal motifs (Jager Gerlings, 1952). These motifs represent ancestors (Jager Gerlings, 1952). "Ancestor worship can be traced back to a prehistoric period and some of its elements have been retained in many habits and customs in Indonesia ever since (Soejono, 1984, p. 5).

Textile Design

Design is representive of the culture that uses specific motifs and patterns; it has a specific design style. A variety of design styles has been identified by Maxwell (1990) for Indonesia. In contrast to the silk weaving of the lowland areas, the highland Sa'dan Toraja, and other eastern Indonesian cultures such as those in the Lesser Sundas, or Nusa Tenggara Island chain use cotton for weaving (Hitchcock, 1991; Gittinger, 1979; and Maxwell, 1990). They also exhibit other similar features, such as a similarity in textile design and textile technology (Maxwell, 1990).

According to Jager Gerlings (1952), Mattiebelle Gittinger (1979), Robyn Maxwell, (1990), and Michael Hitchcock (1991), textiles from Indonesian highland cultures maintain some of the earliest stylistic attributes of the Southeast Asian bronze age, the Dong-son art of North Vietnam. This is inferred from the number of bronze drums that are found in Indonesia dating from this time period (Bellwood, 1979; Maxwell, 1990; Sorensen, 1988). The National Museum of Indonesia, in Jakarta, has several of these drums. There is also a Dong-son bronze drum on the island of Selayer, an island just off the southern tip of South Sulawesi (Map 5). The motifs and patterns on the drums are the same as those found on Indonesian highland textiles (Gittinger, 1979; Hitchcock, 1991; Jager Gerlings, 1952; Maxwell, 1990).

Specific motifs, such as rhomboids, spirals, hook and key, as well as human figures are distinguishing attributes of the Dong-Son art style. Maxwell (1990) states that "human forms are evident in many schematic and interlocking spiral patterns throughout Southeast Asia" (p. 131).

However, despite the emphasis on the bronze-age Dong-Son geometric spirals and rhombus, the design emphasis in art is not always abstract. "Images of anthropomorphism, mystical creatures, and birds and animals from the natural world have been depicted realistically and imaginatively in the textile art of the region" (Ibid, p. 147). Maxwell (1990) illustrates how Sa'dan Toraja ma'a and sarita, as well as the supplementary weft textiles possess anthropomorphic, animal and plant design features.

In Telling Textiles, study on the origin and meaning of textiles of some Indonesian islands, Jager Gerlings' (1952) hypothesis is that the hook and key motif are a geometrical image of the human body, and more significantly, that this motif is seen in the interior highland regions of the Indonesian archipelago. All the patterns are built out of a series of human figures. He illustrates how the Iban Dayak of Borneo, the Sangihe-Talaud island weavers off the northeast of Sulawesi mainland, and the Kalumpung (To' Makki) and Rongkong (To' Rongkong) Toraja use these stylized and abstract human motifs in their textile design (Jager Gerlings, 1952, p. 149). "It seems probable that the human figure-ornament attained its great significance because, originally, it was considered to be a symbolic representation of a series of ancestors".... Thus, "stylized human figures as element in ornament , [is] a common cultural element" (Ibid, p. 150).

Gittinger (1979, p. 206) refers to these motifs and patterns as sekong motifs. They appear on the ikat textiles from the Rongkong and Kalumpang Valleys. Maxwell (1990, pp. 130, 131) also discusses the same sekong motifs and patterns. I will discuss this motif in chapter five.

Loom technology and weaving techniques

The similiarity in cross-cultural design motifs and patterns appears to extend to loom technology (Hitchcock, 1991; Maxwell, 1990). It is suggested by Maxwell (1990) based on evidence from Adams (1972) and Vollmer (1977) that the foot-braced body-tension loom used by the peoples of mainland Southeast Asia, is similar to that of island Southeast Asia, and this may indicate cultural affiliation. Thus, along with the stylistic, linguistic, and cultural similarities with ethnic groups of mainland Southeast Asia and island Southeast Asia, there is a similarity in loom technology (Hitchcock, 1991; Maxwell, 1990).

According to Vollmer the earliest backstrap loom was found on the shores of Lake Dian, 50 km from Kunming, capital of the Yunnan province in southern China. It is dated at 109 B. C., and belongs to the non-Han Dian culture of Yunnan (Vollmer, 1979, p. 79). Vollmer states that it is similar to the Taiwanese loom; and that it has a warp beam, cloth beam, lease rods, shed stick, heddle rod, sword beater, and a backstrap (Ibid, p. 81). This prototype loom is called the foot-braced loom with a continuous warp. This type of loom has technical limitations that affect the weaving process. The dimensions of the textiles possible on this loom correlate with the physical limitations of the loom itself (Vollmer, 1979, p. 81).

Michael Hitchcock makes the observation that a two-part breast beam is used only in isolated areas of [insular] Southeast Asia; and it is also found in the Yunnan Province of southern China (1991, p. 59). A two-part breast beam holds the warp secure, and it can be wrapped around the beam; therefore the warp may be any length.

Mattiebelle Gittinger (1977) states that the [backstrap], or body-tension loom with a shed roll, string heddles, breast beam, sword, and either cross sticks or a coil rod, is a proto-type loom as well. "Because of the distribution of this type of loom among people in the interior such as the Batak and the Iban [and the Sa'dan, Rongkong, and Mamasa Toraja], it is thought to be one of the first

looms used in the archipelago" (Gittinger, 1977, p. 230).

In contrast, the coastal regions use discontinuous warp systems with a sword and a reed in the warp on a backstrap loom, which appears after the proto-type loom (Gittinger, 1979; Hitchcock, 1991; Maxwell, 1990). Gittinger states that this is because the textiles woven on this loom are silk with gold supplementary weft, or songket (Ibid, p. 230).

Indonesian textile studies have shown that textiles made on discontinuous backstrap looms are made of silk with supplementary weft patterning and weft ikat (Fischer, 1979; Gittinger, 1979; Hitchcock, 1991; Maxwell, 1990). If cotton is woven on this loom, the textiles are simply striped or of a plaid variety (Hitchcock, 1991; Maxwell, 1990). Looms of this type appear on Sumatra, Java, Bali, Lombok, Sumbawa, Sulawesi, and Flores (Bolland, 1977; Hitchcock, 1991; Maxwell, 1990).

Michael Hitchcock's hypothesis is that the "continuous warp is used by peoples in the more remote eastern islands and upriver highland areas of the north and west, while the discontinuous warp is characteristic of court-based societies" (Hitchcock, 1991, p. 64). His hypothesis is the same as that of several scholars, in particular Bolland (1977, 1979), Gittinger (1979), and Maxwell (1990). Hence, he too, discusses, how despite the ethnic diversity in Indonesia, there are common themes that are shared by all Indonesians. "The inhabitant of the Indonesian archipelago possess a common heritage which dates back to the Neolithic and bronze/iron ages" (Ibid, p. 180). Hitchcock (1991) points out three common themes that may stand out to be compared in order to gain an insight into the history of Indonesian textiles: (1) textile design; (2) use of the textile in different contexts; and (3) technology of production. He states that this traditional knowledge must be recorded now before it is lost forever (Hitchcock, 1991).

Ling H. Roth (1918) discusses the technology of cross-cultural looms from an evolutionary perspective. One particular loom component called the reed, is

an implement used to keep the warps aligned and evenly spaced. It is also used to beat in the weft elements after each throw through the warp's shed (Ibid, 1918). Roth's argument is that if a reed and a sword are used on the same loom, then this may be a transition loom (Ibid, 1918). "The co-existence of these two tools on one and the same loom therefore indicates a transition state, in which the primary use of the reed appears to be that of a warp spacer, before the discovery was made that it could have been used as a beater as well" (Roth, 1918, p. 74).

The only loom with a continuous warp and reed was found on the Sangihe-Talaud islands off the North Sulawesi coast (Jager Gerlings, 1952; Maxwell, 1990). Today on Sulawesi, the only looms with reeds are the coastal and lowland looms of the Bugis peoples (Crystal, 1979; Gittinger, 1979; Hitchcock, 1991; Maxwell, 1990). These looms are technologically different from the foot-braced loom, the Sangihe-Talaud loom, and the highland Toraja looms because they have a discontinuous warp system (Ibid, et al). Maxwell (1990) speculates that the Sangihe-Talaud loom is a transitional loom because it has a reed and a circular, or continuous warp. The decorative technique used on this loom was the discontinuous and continuous supplementary weft technique (Jager Gerlings, 1952).

Silk and Cotton

Historically, the coastal and lowland Bugis use silk as their weaving material while the highland Toraja use cotton (Crystal, 1979; Gittinger, 1979; Hitchcock, 1991; Jager Gerlings, 1952; Maxwell, 1990). The To' Rongkong Toraja used pineapple fibres to weave like the Sangihe-Talaud weavers did in the past (Jager Gerlings, 1952). The Sa'dan Toraja also used pineapple fibers as a weaving material historically, especially during the Japanese internment when the supply of cotton had declined (Volkman, 1985, p. 39). Volkman (1985) states that before the Dutch invasion, cloth was made from pineapple fibers. Prehistorically, it is not clear whether pineapple fiber was used

exclusively for weaving, or if cotton was also used.

As an isloated highland people, the Toraja had indirect trade contact with the Chinese, Indian, Islamic, and Dutch trade culture (Volkman, 1985). Any trade in silk and cotton from these disparate cultures would have been indirectly transmitted through the Bugis and the Makassar peoples south of the Toraja (Aragon, 1991). However, an indigenous cotton is grown in east Sulawesi, in Kendari; cotton is also grown in To'Barana' (Mattulada, Personal communication, Ujung Pandang, 1993). Maxwell (1990) suggests that locally grown cotton is used for the weaving of sacred textiles.

Analysis of technical aspects of silk and cotton technology may disclose the extent to which any influences, limits and controls have resulted from the use of either cotton or silk (Maxwell, 1990, pp. 158-174). Thus, the loom in the lowland and highland areas is dissimilar because the lowlanders use silk as their weaving medium while the highlanders use cotton. The natural properties of these two fibres makes it necessary to have a particular loom technology, as well as specific knowledge and skills in handling each fibre type. "The use of silk and its related technology has contributed to the development of decorative weaving techniques where the weaver's attention is directed to the possibilities inherent in the weft threads" (Maxwell, 1990, p. 164).

Supplementary weft decorative techniques

Rita Bolland states that "many textiles have a decoration made by supplementary weft technique, a technique called brocading...and this cannot tell us anything about the type of loom used" (1991, p. 181). The supplementary weft technique is used in many Indonesian weaving designs (Fischer, 1979; Gittinger, 1979; Hitchcock, 1991; Maxwell, 1990). "Not only in Bali, but throughout the whole of western Indonesia, songket is the term used to describe a technique in which additional patterns are woven into a material with supplementary weft threads, either running across the entire width or covering only individual parts of the cloth" (Hauser-Schaublin, Nabholz-Kartaschoff and

Ramseyer, 1991, p. 33).

The authors of Textiles in Bali, propose that the songket technique is an Indian textile technique that was introduced to Indonesia via the Hindu-Buddhist priests who stayed in the coastal royal courts (Ibid, p. 34). They state that Indian culture and material culture were assimilated into these lavish courts (Ibid, p. 34). Gittinger, also discusses the use of silk and gold by the Indonesian nobility in "high culture areas, and regions directly subject to the influence of central courts" (1979, p. 230).

According to Maxwell (1990) supplementary warp pre-dates supplementary weft patterning in the Indonesian archipelago. "While certain supplementary weft techniques on cotton are an ancient and possibly prehistoric means of decorating Southeast Asian textiles", there is evidence that this technique became used in the area beginning with the Hindu-Buddhist influence in the 6th century A.D. (Maxwell, 1990, p. 172). "The shift from warp to weft decoration occurs at the time of the Indian influence" (Ibid, p. 158). Evidence for this is the use of silk for weaving material (Ibid, p. 160).

Maxwell (1990) states that the supplementary weft technique may have travelled from Laos to Sumatra and as far east as Lombok (Ibid, p. 174). She also describes how the technique may have spread between Lombok, Bali, and Sumbawa (Map 2). According to Bolland (1973), sacred textiles on Lombok and Bali are made with cotton fibre using a continuous warp on a backstrap loom. Maxwell maintains that in "places where ancient supplementary weft techniques such as weft wrapping are still applied to cotton textiles they are usually carried out on the older backstrap tension loom with a continuous circulating warp and without a reed. Such textiles have remained important in ceremonial exchange and as objects of magic and ritual, especially for the reaffirmation of beliefs that stretch back to the time of the ancestors" (Maxwell, 1990, p. 170).

Maxwell has pointed out that weft ikat came into use at the same time as supplementary weft technique using silk and gold threads (1990, p. 158). The

spread of Islam in Sulawesi from as early as the 1400's and officially since the 1605 (Pelras, 1993), may be the reason why the weavers used more formal and somber designs and colours (Maxwell, 1990, p. 329).

"Both warp and weft ikat are to be found in the silk cloth woven by the Buginese community in Donggala in coastal central Sulawesi (Kartiwa, 1983, in Maxwell, 1990, p. 167). Historically, the coastal Mandar like the coastal Bugis and Makassarese also wove on backstrap looms with discontinuous warps using silk and cotton fibres (Gerlings, 1952; Gittinger, 1979; Hitchcock, 1991; Maxwell, 1990; Jasper and Pirngadie, 1922). Maxwell (1990) illustrates how Sumbawa was under the Islamic Sultanate of Goa, from South Sulawesi, in the 17th century (Map 2). Supplementary weft weaving and ikat are done on the coastal regions of South Sulawesi today and in the past on the islands just off the coast of North Sulawesi, the Sangihe-Talaud Islands (Jager Gerlings, 1952; Gittinger, 1979; Maxwell, 1990).

Variations of the supplementary weft weaving

In "An introduction to the body-tension looms and simple frame looms of Southeast Asia" (1977), Gittinger discusses the three different methods of weaving supplementary weft technique: (1) The simplest means of raising the necessary warps is by selecting them with a fine stick, as among the Maa' of Viet Nam (Boulbet, Plate XXIIIa) and Jarai (Hickey, 1977, p. 56).

> (2) A more complex way of effecting supplementary-weft patterns involves the use of pattern rods which are inserted beyond the heddles and are used to raise a particular combination of warp yarns. However, the shed stick which depresses every alternate warp, prevents the lower yarns from being lifted into a new shed. Therefore, the pattern rods are laced only into those warps running over the shed stick, and through the rather loose loops of the string heddles. The decorative weft element is inserted through the shed that is formed as each rod is initially interlaced into the warp....When one half of the design is complete, the stored pattern rods may be reused, but now by necessity in reverse order, each rod being removed from the warp after being used. This creates a mirror image of the original pattern half (Gittinger, 1977, p. 56).

The Batak of Sumatra weave by this method (Ibid, p.56).

(3) Replacing the shed stick with a second heddle mechanism utilizing string heddles allows for still more flexibility in the patterning. Now combinations may be selected from all the warp yarns, not just alternate ones, for all combinations can pass through the leashes to form new sheds. This method is used for weaving songket from Palembang (Ibid, p. 57).

(4) Pattern rods carried in the warp beyond the shed stick may also be used to form complementary-warp patterns....as long as the shed stick remains in place, the manipulation of the warp involves merely those elements riding above the shed stick, or these in combination with the individually selected warp elements. This weaving is done on Sangihe-Talaud, Timor, and [Mamasa on Sulawesi] (Ibid, p. 57).

Twill weaving

Jager Gerlings (1952) and Maxwell (1990) have commented that the supplementary weft weavings from the Sangihe-Talaud Islands, off the northeast coast of Manado, North Sulawesi, contains the ancient spiral and hooked lozenge motifs. However, weaving of this type does not exist on these islands today. Maxwell comments how an old Sangihe-Talaud textile with supplementary weft technique is "similar in structure and motif to the large batik hangings made by the Toraja living further to the south in Sulawesi" (Maxwell, 1990, p. 52). Maxwell proposes that "similar patterns can be achieved through interlacing and weaving and this suggests that the same visual aesthetics were retained with the change from one technology to the other" (1990, p. 41).

I found this to be the case with the decorative weaving techniques, and twill design in South Sulawesi, and more specifically in Sa'dan Toraja weaving (see also Maxwell, 1990, p. 38). The twill technique may not be used by many Indonesian weavers, but twill designs, such as the ancient spirals and hooked lozenges, rhomboid, hook and key, motifs appear all over the archipelago (Maxwell, 1990). For example, the ancient ship textiles from Lampung, South

Sumatra, are made of cotton with supplementary weft designs similar to those of the Sa'dan Toraja (Maxwell, 1990, p. 78).

The twill pattern appears in many mediums, including weaving, throughout Central and South Sulawesi (Maxwell, 1990). Maxwell (1990) states that "while most body-tension loom weaving uses a simple 'one-under one' tabby weave, twill weaves which have created textures on cloth akin to plaiting or matting have also been produced in many parts of Southeast Asia, and discoveries of fragments of twill weave vegetable-fibre fabric in the Niah Caves in Sarawak are the oldest known woven fabric yet discovered in insular Southeast Asia" (Maxwell, 1990, p. 46).

Mattiebelle Gittinger states that the use of two or more heddle rods with string heddles will also produce a twill weave, and that this is a rare technique in Southeast Asia (Gittinger, 1977, p. 57). "Jager Gerlings...discusses the presence of this weave among the Kajan Dayak and Pnihing Dayak and speculates it may be related to the twill weaves of the Naga of Assam" (Jager Gerlings, 1952, p. 56-75, in Gittinger, 1977, p. 57). She points out that "twill weaves are also done on looms with four heddle rods in addition to that used for the plain weave foundation by the Angkola Batak of Sumatra" (Ibid, p. 57). The Angkola and the Toba Batak of Northern Sumatra use twill weaving as ground weave and as supplementary weft and warp (Niessen, 1993).

Niessen (1993) describes the use of compound heddles and the weaving of twill weave decorative patterns and ground weave of the Toba Batak. She states that the "Toba Batak weavers manipulate their compound heddles to make both structural and non-structural elements, ie. to produce the ground weave or to embellish the ground weave..." (Niessen, 1993, p. 5). She hypothesizes that the Batak loom with its combination of compound heddles and pattern rods or shed-savers could be an intermediate kind of loom between the simple heddle-shed-stick variety and the more complex loom with pattern heddles. This loom, while able to produce ground and supplementary weaves,

also is used in such a way as to blur this same distinction. This is due, in part, to the special feature of the Batak compound heddles, that a single set of heddles can pick up different sets of warps (Niessen, 1993, p. 5).

Bolland describes the process of twill weaving using the two twin heddles (1979, p. 291):

a. front loops of twin heddle I -- to form shed 1.
b. front loops of twin heddle II -- to form shed 2.
c. back loops of twin heddle I -- to form shed 3.
d. back loops of twin heddle II -- to form shed 4.

All, or any combination may be used depending on the desired motif and pattern, that is, whether it is a discontinuous or continuous supplementary weft design. The extra pattern rods that are not used temporarily are kept at the back of the shed roll (Ibid, 1979).

Bolland states that the Angkola also add extra pattern heddles to the warp in the process of weaving for making supplementary weft patterning, or as she calls it, brocading (Bolland, 1979, p. 292). She also suggests that it is more complicated to use twin heddles than it is to use extra pattern rods (Ibid, 1979).

Coil rod

A coil rod is a loom component that keeps the warps ordered on the loom by maintaining the cross in the warp. Rita Bolland (1977) suggests that the coil rod: (1) is used by isolated peoples; (2) not much outside influence has occurred where this loom part is found; (3) that traditional fabrics are woven on a coil rod loom. However, "a loom can have cross sticks in the warp, or a coil rod, or neither of them, and sometimes the cross sticks are replaced by strings. In fact, you do not need these implements to weave. They are only a help" (Ibid, p. 70). She gives the following functions of the coil rod, but excludes its primary function as a cross saving device:

> To disentangle the warp threads before they enter the working area of the loom; this is an important function in a loom that is rolled up to store away; to keep the warps in a smooth

> plane; to help maintain an even tension in the warp; to give a point of resistance near the shed-stick, which helps make a clear shed; to make it easier to locate a broken thread to mend it; to act as a warp spacer (Bolland, 1977, p. 71).

She states that the cross sticks keep the cross in the warp, but not the coil rod (Ibid, p. 72).

According to Ling Roth (1918) the coil rod is found on: the Bhotiya loom, in Darjeeling, India; the Igorot loom, on Luzon in the Philippines; and the Ilanun loom on Borneo (Roth, 1918, pp. 74, 79).

It is interesting to note that Ling Roth's description of cross sticks, (he calls them the laze rod), reads like a description of a coil rod: "The laze rod consists of a piece of cane about half an inch in diameter, round which every warp is wound once so that the rod can be rolled backwards and forwards, and still keep the threads in position" (Roth, 1918, p. 75). He does not mention that the laze rod[s], or coil rod, maintains the cross, only that it helps maintain the order of the warps. Roth is the only textile researcher to point out that the coil rod, or what he calls the laze rod, may be used to select warps to insert extra pattern heddles and heddle cords for the supplementary weaving, although he does not describe this point.

Gittinger points out that the coil rod maintains the order in the warp, as Bolland (1977), and Roth (1918). Michael Hitchcock's description of the coil rod is the only one to mention that the coil rod maintains the cross: "sometimes a circular cross is used instead of a weaver's cross, in which case both odd and even warps are wound on a single coil rod" (Hitchcock, 1991, p. 57). He uses the term "weaver's cross" to mean the cross held in the warp with laze or cross sticks. He does not state clearly how the warps wrap around the coil rod to form the cross, nor that the coil rod is used for inserting pattern heddles. Below, I illustrate this technical variation as I witnessed it in the field.

Irmgard Weitlaner Johnson (1979) discusses the coil rod, but uses

another name, calling it the "warp spacer". She states that "every warp is wound once around this stick, in a certain way, to keep it correctly spaced and to assure its position" (Ibid, p. 139). Furthermore, Johnson suggests that the warp spacer has a "secondary function, that of a shedding device" (1979, p. 143), whereas its primary function is to keep the warps in correct sequence and assure even tension.

Above I have reviewed the literature on backstrap looms, and loom parts such as the coil rod and cross sticks in order to compare it to the Sa'dan Toraja loom (see chapter five) and how these data compared to data from the surrounding weaving locations on Sulawesi. Furthermore, the literature enabled me to formulate questions about Sa'dan Toraja weaving techniques, such as the supplementary weft weaving: (1) Does supplementary weft technique have anything to do with the type of loom; (2) Does supplementary weft technique have any relationship to the coil rod; (3) What motifs are made with supplementary weft techniques; (4) What type of looms have coil rods on Sulawesi; (5) Are sacred textiles of Sa'dan Toraja made with supplementary weft techniques; (6) Where else is the supplementary weft technique used on Sulawesi? These questions were answered by ethnographic fieldwork in Sa'dan Toraja.

Chapter Three

Research Methods and Methodology

Introduction

My research findings are based on my fieldwork in South Sulawesi, Indonesia. I was in Tana Toraja, South Sulawesi from July, 1993 until May, 1994. The Sa'dan Toraja weaving techniques and loom data I am presenting in this thesis have not been discussed in the Indonesian textile literature. To my knowledge, this is the first Indonesian textile study to use an ethnographic approach to study the technological details of weaving techniques as they correlate with the loom. The extant Indonesian textile literature does not explore in detail loom technology as it relates to weaving techniques.

The length of time in the field enabled me to learn Indonesian, and acquire some Toraja language skills. It also provided me with time to observe and participate in the day-to-day happenings of village life in highland South Sulawesi. By observing the local community and participating in the daily routines I was able to find out who the weavers were, what looms they used, how they used their looms, when and where they wove, and for whom they wove.

Participation in the weaving process was the primary method employed to learn about weaving, and this is the basis of my data collection (Bolland, 1991). The documentation of technical aspects of weaving provides a record of a technology that is not usually included in studies of culture, history, and technology.

The extant Indonesian literature about weaving tools and techniques is general; therefore, there is a need for more specific and detailed data on weaving tools and techniques. It is this detailed technical data that may then be used for comparative research, and thus, be validated for inclusion in the study of culture history.

In order to retrieve this technical weaving data, field research is indispensable. Participation in the weaving process provides an opportunity for

the researcher to experience weaving, and thereby understand the workings of the loom with more insight. Participation enhances and complements the observation of weaving. This is important because weaving is in the non-verbal domain. Utterances do not, and presumably cannot, convey tacit knowledge. In the field I learned how to weave on a backstrap loom; because tacit knowledge is difficult to convey on paper, I have included the product of my learning with this thesis: my handwoven textile. My textile is the accumulation of all the tacit weaving technical knowledge acquired in Sulawesi.

Field work research with WUSC

As part of the WUSC, World University Service of Canada, Seminar on Development in Indonesia, in June and July of 1993, I was able to travel to Java, Kalimantan, and South Sulawesi. In each one of these locations I sought out textile production, or any information pertaining to women, weaving, looms, textiles, and development. It was while I was with the Seminar that I had intensive language training in Indonesian at Gadjah Mada University in Yogjakarta. The three anthropology advisors, Dr. Jim Morrison, Dr. Rebecca Aiken, and Dr. Hans Bakker, accompanying the thirty Seminar participants, provided valuable experience in interviewing and how to pose appropriate questions. Dr. Hans Bakker helped me with several interviews by acting as my translator at the universities during interviews with Indonesian professors, as well as with interviews out in the field sites.

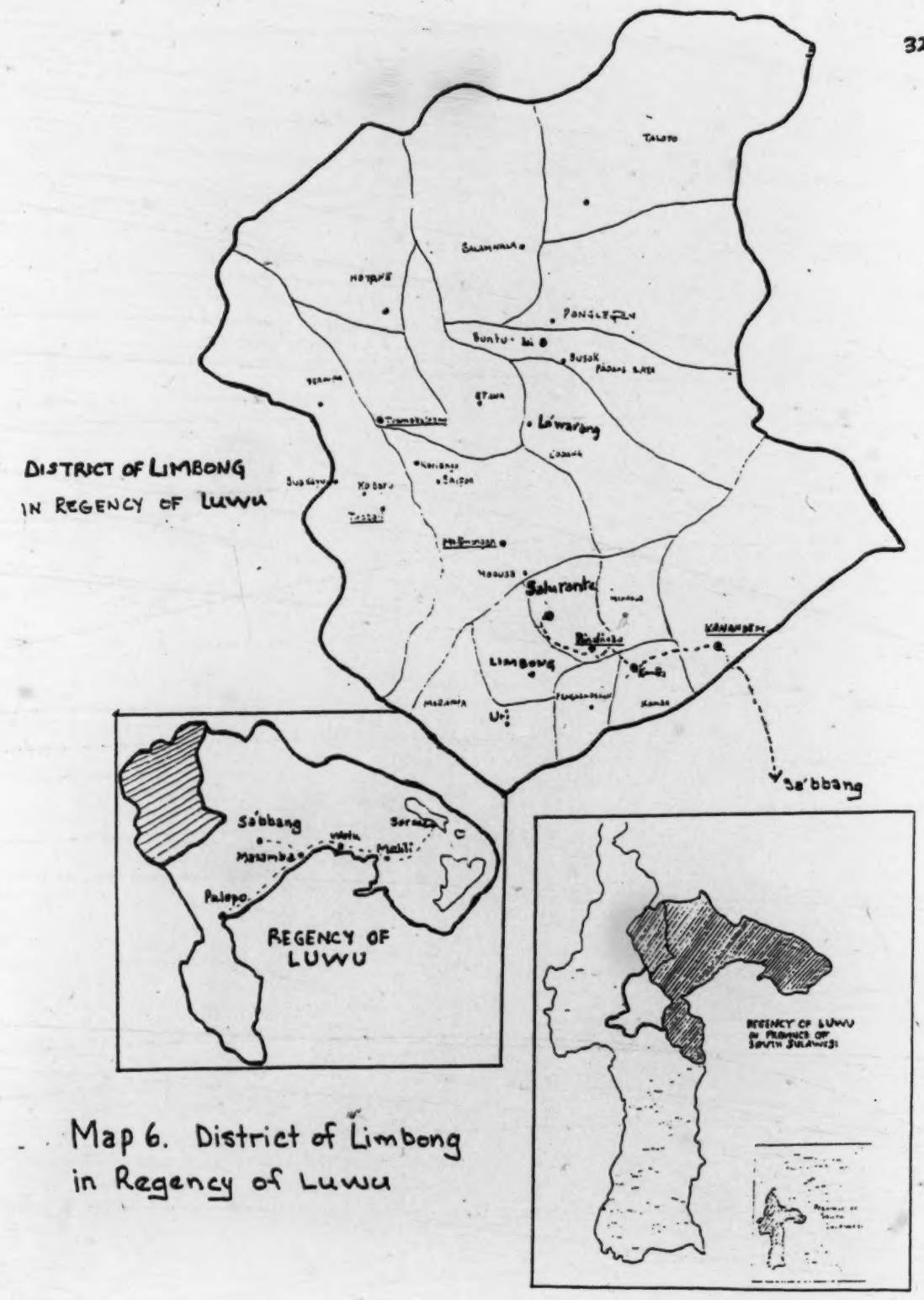
During the course of the seminar I learned a great deal about the culture, history, art, subsistance, geography, language, religion and finally, textile production of Indonesia. We also had intensive lectures from leading Indonesian professors and professionals from several fields, such as engineering, population and culture, and medicine. All of this provided a sound back-drop for my fieldwork research. I was able to make connections at the University of Hasanuddin, Ujung Pandang, South Sulawesi, that enabled me to conduct my field work in Tana Toraja because it was the Director of Graduate

Studies, Prof. Dr. Hardojoeno, who provided me with my letter of introduction to the bupati, or regent of Tana Toraja, Dr. Andi Lolo. Later this connection enabled me to live in the camat's family house in To'Barana'.

During my participation in the WUSC Seminar I was introduced to the customs, and culture of Islamic Indonesia because I was able to stay with a family at the onset of our stay in Yogyakarta. The "home stay" experience was a way to become familiar with the lifestyle and customs of the "typical" Indonesian Islamic family. Almost 95% of the Indonesian 192,000,000 people are Islamic (Soetrisno, 1993). This experience proved invaluable because I learned appropriate etiquette and dress.

My rich and diverse experience with WUSC, increased my understanding and knowledge of Indonesia's present and past. The information and experience I gained during the seminar would have taken years to accumulate on my own. The opportunities to interview such high standing Indonesians as Professor Mattulada and Professor Soetrisno, and others, may have otherwise been difficult due to the formal permits necessary to conduct research in Indonesia.

In July, 1993, after the seminar I returned to Tana Toraja to remain for ten months. Once I had established a place to stay both in the town of Rantepao and in the village of To'Barana', I investigated the other weaving locations I had read about in the textile literature. I wanted to locate other weaving locations that had backstrap looms with continuous warps and a coil rod; weave the supplementary weft technique; and use cotton as the weaving medium. In early August, 1993 I travelled into Central Sulawesi by way of the Luwu' Regency, Lake Poso, and the capital of Central Sulawesi Province, Palu, then to the village of Towali in search of the supplementary weft, double and compound ikat cloth made in Donggala. In October, 1993 I would go into the highlands of Luwu' into the Rongkong Valley to look for the warp ikats and the loom of the To' Rongkong and To' Makki (Map 6).



Map 6. District of Limbong
in Regency of Luwu

Observation, participation and interviewing

My data collection process was phenomenological, that is it was based on `lived experience'. The strategies I chose to complement this approach were observation and engagement of people in unstructured and undirected interviews. As an 'observing participant' "active participation in the social life studied [was] virtually the only data gathering method" (Ellen, 1992, p. 29). I was my own `instrument', my weaving and dyeing skills and knowledge assisted me immensely. I did have objectives and specific details to look for technically, but the way in which way I accomplished my goal, was based on `lived experience'.

The degree to which I used the three strategies of participation, observation, and conversation varied with the circumstance of the events, the activities, and the actions of all peoples involved (Spradley, 1980). My first task was to locate weaving in its natural setting, so that I could observe and describe it with accuracy. I felt confident that the reliability of my weaving data could only be valid by studying it in its context. Thus, by living with a family I was able to learn more about the context of weaving.

In the family setting, I was able to observe the variety of chores women performed from dusk to dawn, daily, weekly, monthly, and seasonally. Before and after dinner was the most social time for the family. It was at this time that I made special bonds with people, and we exchanged information about ourselves and each other's culture.

I participated in the daily life of the village, and did my research by actually weaving myself. My questions revolved around the task at hand and as such they remained open-ended. However, I did focus my investigation efforts on eliciting data pertaining to weaving. Conversations took place in natural settings, such as beside the weaver's loom or during the morning wash beside the river, while the looms were being set up in the stalls, afternoon tea, and after dinner. There were no time limitations to interviews; they were unstructured, and

characterized by two, or more, people engaging in everyday conversation. Because I was the 'observing participant', I refrained from asking too many questions at any one time. I tried instead to not disrupt the regular activities. I did not want my questions to shape the peoples view of reality.

I did most observing in the village at the side of the weaver's loom. This was a social site, a place where everyone gathered to lounge and converse. It was set up in a series of bamboo and palm stalls, shelters, left over from a large funeral ceremony one year prior to my arrival (Figure 2). Since then, the site was frequented by an endless stream of tourists, especially in the dry season, between June and October. I was able to observe the effects of the tourist market on the weavers and the weaving.

It was interesting to witness the actions and reactions between the weavers and the tourists. Due to my dark colouring, small stature, and the Toraja form of dress I wore as I sat about with the villagers, I was taken as a Toraja by the foreign tourists. This seemed to please my family and everyone found humour in this fact. I was once video taped by a German couple whilst weaving much to the delight of the villagers. This indicated to me that over time I became more accepted by the village people. However, during my visits to other parts of Sulawesi, I was treated like another 'tourist' by the local inhabitants. This came as a shock when I was so well accepted in 'my' village; it left me overwhelmed.

I found four contributing factors that effected my field work situation: (1) the natural setting of everyday life and interactions; (2) access to the community; (3) acceptance, responses and observations from the community; and (4) the establishment of my role within an extended family and its community. Of all the influencing factors the establishment of my role in a family proved to have the greatest impact on the success and/or failure in collecting my data

Figure 2. Each weaver sets up her loom in these bamboo and palm stalls. Tourists walk up this path to view the women weaving, and to purchase textiles. (Photograph by Maria Christou, 1993).

Field role: behaviour and length of time in field

As stated above, the main `instrument' of the investigation was myself, based on the idea that data is gathered from personal involvement in social interactions in situations as they occurred. The social situations were not artificially constructed. In other words, I was part of the context being observed, so in some respect I did modify and influence the context by my presence. At the same time, the verification of my data came from my participation within the community because the validity of my approach was constantly being tested against the everyday experience of the community. The people of To'Barana' defined the terms of my acceptance, and I worked within these terms (Whittaker, 1981).

My field stay was long enough for me to discover the terms of conduct and behaviour in To'Barana'. The length of time in the field also brought me closer to the people with whom I lived. I was adopted into the extended family of the To'Barana' village. As an adopted family member, anak diarak, or foster child, I had access to weaving, warping and every other female domain in Sa'dan culture. However, this also proved to be limiting because my behaviour had to correspond to the values held by the Sa'dan Toraja people. This was very complicated because I was not always clear what was expected of me as a member of the community.

Becoming too involved with the community affected my ability to conduct research because the family I lived with became possessive of me and envious of my attempts to broaden my social ties. I lived with the highest status family; therefore, I did not want them to lose face by living with them, but studying elsewhere. Having a foreign guest, especially a university student, stay in the village was a sign of high status. In the end, I resolved to study only in To'Barana' and could only visit the other three villages without appearing to do research. However, once people in the other villages learned where I lived, they would not share any information regarding weaving because it would offend the

family in To'Barana'.

My nationality was important because Canada has many successful development projects in South Sulawesi through the SRDP.[3] The local people have a positive impression about Canadians, and this in turn provided me with a positive image.

In Sa'dan Toraja weaving is in the female domain. I believe I was accepted into a family more readily because I am a woman. A family setting seemed a natural setting for me in order to learn how to weave. Being female, of relatively young age, and not married did help me because young, unmarried women learn how to weave in To'Barana' from family members. Weaving skills and knowledge are passed down from mothers to daughters and from grandmothers to granddaughters.

Method for studying the weaving process and technology

My methods for this investigation are based on Junius Bird's guidelines for documenting weaving (1960, 1979, 1983). I recorded the warping procedures, the steps involved in the weft insertion, the handling of the weft at the selvedges, the methods of terminating the weaving, and the procedures to vary the textile textures, ie. the procedures to create patterns (Bird, 1979, p. 117). Along with studying the warping and weaving process, I also follow his suggestions for examining the backstrap, or body-tension loom.

I have been able to determine the weaving process and technology of the supplementary weft technique based on my own knowledge as a weaver and student of textile analysis. In addition I have used the methods and suggestions

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"The Sulawesi Regional Development Project was established in 1984 in response to a regional development study of Sulawesi....The study found most of the more than 12 million people living on meagre incomes from the proceeds of farming and fishing. The project, which is sponsored by the Government of Indonesia, receives technical and financial assistance from the Canadian International Development Agency. The University of Guelph provides the technical component of the project". (SRDP, University of Guelph Team, Ujung Pandang, South Sulawesi, Indonesia, 1993).

of Bird (1960, 1979), Bolland, (1991), Frame (1982), and Niessen (1991) as my guide in this investigation. The following is a list I created to use in the field in order to guide me and keep me focused:

1. Materials.
    a. The loom, and the parts of a loom.
    b. The warping frame.
    c. The yarn.
    d. The tools used in preparing the weft yarn.
2. Setting up the warp.
    a. Winding the yarn onto the warping frame.
    b. Inserting the heddle string and rod onto the warp.
    c. Securing the warp before transferring to the loom.
    b. Transferring the warp onto the loom.
3. Setting up the loom.
    a. Straightening out the warp.
    b. Tying the heddles.
    c. Adjusting the tension of the warp.
    d. Fixing the warp with the two cloth beams.
    e. Winding the bobbins with weft yarns.
4. The weaving process; how the loom works.
    a. The initial weaving.
    b. The steps in the changing of the shed for weaving.
    c. Keeping the edge even and neat.
    d. Finishing.
5. Problems.
    a. Repair of broken warps.
    b. Repair of too many warps through one heddle.
    c. Repair of heddle cord.
    d. Correcting uneven tension.

Collection of artifacts

My collection of textiles from Sulawesi mostly includes purchases that I used during the course of my fieldwork for clothing and covering. I also have the textiles that I made myself. I collected these because I wanted to have a physical sample of my field work experience. The loom and textiles provided information that I used as data. I had a traditional Sa'dan Toraja costume made for me as a reference sample for my thesis. This costume is my personal primary reference because it is a physical and permanent record of the style of Sa'dan Toraja dress, and an example of the use of supplementary weft with both continuous and discontinuous patterns and motifs covering portions of the surface of each textile. By analyzing the weaving patterns on these textiles once I was back from the field, I was able to verify data I had collected in the field.

Purchases were made from weavers who had instructed me. They imparted their knowledge and taught me their skills without wanting payment. My purchases from their textile stalls, or stalls of their relatives, was the exchange for helping me with my research. In this way my dilemma of payment for the knowledge and time given to me proved to solve itself. Everyone involved was able to save face by this form of exchange because outright money transactions would be embarassing. This I learned from experience. Other collected objects were gifts from adopted family members and friends, given to me upon my departure.

Photography

I used photography for the purpose of collecting and recording data. Since weaving is a non-verbal and visual act I used photography to capture its process. It is quick, and I was able to focus specifically on what it was I needed to be recorded. In retrospect I would have benefited from a tripod and release cable. I used both slide and print film for photography. A video camera would have been an asset, but there was no proper storage for the video film in the conditions in which I lived. Also, I would not have been able to video tape the

warping due to the secrecy involved with this process.

I photographed people who knew me, or at least knew my purpose for photographing. Photography took place only if appropriate; in some instances I was asked to take photographs for my family. I learned quickly when the time was appropriate for photographs because I observed the villagers' reactions to the tourists photographing them in the midst of their daily routines. I noted how much they disliked being photographed if they were not dressed appropriately, or in the midst of some unpleasant chore. I would have preferred to capture people in their natural setting, but they preferred to be dressed up and posing. The number of tourists in the area had made the people rather tired of being photographed and video-taped without permission, and without any regard to their privacy. This fact influenced my photography.

Note taking in public was kept to a minimum for similar reasons, as well as the fact that I did not want to interrupt the local scene. I was as discrete as possible whenever I did take notes in public. Note taking is impossible when one is weaving.

I did have a dictionary with me constantly, and this I found helped establish my role as a student and a researcher and to form relationships without being as obtrusive as photography. During moments of awkward silence between my informant and me the dictionary helped initiate conversation. Using the dictionary to understand the language established communication between the people and myself.

Establishing role in To'Barana'

In To'Barana' weaving takes place in the communal compound everyday, and this fact enabled me to witness and learn the weaving skills held by this village because I could observe it at any time. As stated above, living with a family influenced my access to other aspects of weaving, such as warping and setting up the loom. These two activities were not done in public. Without having the insider's point of view I would not have been able to observe these

two activities. I observed, participated, and recorded the warping and weaving process while living with an extended family in the village of To'Barana'. I had access to all of the weaving community because of my positive relationships with my extended family.

At first my research goal was hindered by the fact that I arrived in the midst of the tourist season. Because so many tourists arrive at this time to buy textiles and observe the weaving of the Sa'dan Toraja, I too was considered a tourist. The tourist season keeps the women too busy with selling textiles and demonstrating their weaving to deal with an ethnographer. Furthermore, it is the peak of the funeral ceremony season in which the women are obligated to participate. It is was only by living with a family in the village through the tourist season that I transcended this problem. I was able to observe weaving, and get to know the daily routines and the ceremonial obligations of the families in To'Barana', as well as practice my Indonesian and Toraja language skills during this busy time.

All the women in To'Barana', especially those over thirty, know how to weave. All the women have their looms set up to demonstrate weaving and sell textiles. I was able to observe weaving everyday, beside any weaver who was weaving. I would move among all the weavers in order to see what weaving techniques were common to all the weavers.

I arrived for the second time in Tana Toraja at the end of July, 1993. At the end of the month I met Mama Erni in To'Barana'. Upon our first meeting, she asked me to live in her extended family's home. She was a widow, and lived with her mother, sister, and brother-in-law. All three of her children were absent. Two went to school in Ujung Pandang, and one had re-located to Jakarta.

My first weaving experience was on Mama Erni's loom. Mama Erni taught me how to weave on a body-tension loom with a continuous warp. Unfortunately, she did not know how to weave supplementary weft, nor how to warp. My position suddenly became uncomfortable. Due to Mama Erni's high

social rank in To'Barana', it was impolite to replace her as my main weaving teacher for another teacher. Nonetheless, for the purpose of my research objective I had to find another weaver to work with. Initially, this situation caused tension between Mama Erni and myself.

I introduced myself to the other weavers in the course of my stay in the village. After weaving on most of the weavers' looms and being instructed on how to move in the loom and how to hold the loom parts whilst weaving, I was able to demonstrate my talent for weaving. Once this was accomplished a new level of seriousness overtook my insecure circumstance with Mama Erni. In the end it was she who encouraged me to seek out Nene' Juni, a much older, and so, a more knowledgeable and skilled weaver.

After Nene' Juni's initial help I carried on weaving on my own. I was given permission to set up a loom in the weaving area along with the other weavers and wove whenever they did. Otherwise I would follow them in their daily routines. I would wash my clothes in the river and bathe there when they did, and we would have meals together. Whenever there was a ceremony to go to I would be asked to accompany the family. I dressed and behaved according to the Sa'dan Toraja adat in order to be respectful of the customs and traditions of the people.

Once I became involved with the To'Barana' village life it was difficult to leave for Rantepao, or Ujung Pandang, and even other nearby weaving locations without arousing curiosity and interest. Because I was a woman I had to comply with the Sa'dan Toraja's expectations of what correct behaviour and etiquette a woman should exhibit. I found this stressful at times because it inhibited my access to other weaving sites. Once people knew I stayed in To'Barana', they would not assist me in my research because it would be impolite, in that, it would seem that the To'Barana' weavers were not skilled enough to be my teachers. Eventually, time and better language skills overcame this barrier.

Later two of the eldest great-grandmothers, Nene' Juni's first cousins, Nene' Titi and Nene' Butong, took over teaching me to weave because Nene' Juni had to be at her stall to demonstrate weaving, weave and sell her textiles. Nene' Butong and Nene' Titi had leisure time because of their high status and old age (both in their nineties), and so were able to be my weaving teachers. It was Nene' Butong who gave me permission to weave in her and her sister, Nene' Palawa's, weaving stall. Before I began weaving in the morning, I would set up their textiles for them in the weaving stall, and then put them away at the end of the day after the tour mini-vans had stopped coming.

Whenever I would weave, Nene' Butong and Nene' Titi instructed me with a seriousness and reverence that amazed me; I was lectured with precise instructions on how to move my body correctly to get a rhythm going. As with other beginners, I learned to weave in a communal setting. If any weaver noticed me weaving incorrectly, or moving incorrectly, I was eventually corrected. For example, the women from Matallo come to To'Barana on market days to put their textiles in the weaving stalls as commission pieces. One time, one of them, Mama Hersome', after her initial surprise at seeing me behind a Sa'dan loom, directed me when she saw me weaving. She indicated to me that I must push harder on the wooden blocks with my feet in order to keep the warp tension and the weaving even. She also informed me that my warps were sticking together in the shed of my loom, and this is called sitopo. By indicating to me that I must keep the tension in the warp taut, she was able to help me correct my problem.

The wet season was the most socially interactive period for all the village. Everyone sat on the weavers' stalls. Sometimes people would play cards in the weaving partitions beside the one I was using, so people would alternate with their visits to either my partition, another weaver's, or the card game. During these times I listened to many stories about life, ceremonies, child rearing practices, and the arrival of the Dutch.

My eldest weaving teachers, Nene' Butong and Nene' Titi, were pre-school children when the Dutch came to To'Barana' in 1906. Nene' Titi's daughters, Nene' Buahlolo and Nene' Ratih were both my adoptive mothers because I lived with Nene' Ratih, but shared meals primarily with Nene' Buahlolo's family. This was due to the social aspects of Nene' Buahlolo's family. It was larger because her two daughters, Mama Sabi and Mama Batosi, lived with her as did all their children and a cousin. Nene' Titi lived with her eldest daughter, Nene' Ratih, and her husband also called Nene' Ratih. Mama Oke' and her cousin and my main informant, Ka' Salogung lived with Nene' Ratih as did I.

I observed that weaving is a significant social and cultural activity that is highly valued and respected in Sa'dan Toraja. Only the high status women may weave. Technical knowledge about warping, loom preparation, and weaving techniques is guarded information. The warping process is the most significant feature of weaving technology; without information about the warping process the weaving record is incomplete.

It was only my continual presence, expertise, and sincere desire to learn how to weave that made warping data available to me. After several months of proving myself as a weaver I was given access to warping data. Previous to this I had never seen women warp because they did it inside their homes without the presence of others. If I had not had sufficient communication established between myself and a weaver I would never have been able to witness warping. At the end of my field stay I was able to warp by myself.

Gatewood (1984) summarizes how I perceive my behaviour in the field to be best described: we know that accuracy substantiates validity, and therefore makes for reliable data; but he also points out that "all knowledge is socially constructed; there is no value-free science" (Weber, Gatewood, 1984, p. 5). I believe that there is no research that involves complete objectivity, my own "values, motives, life ambitions, theoretical prejudices, and so on" (Gatewood,

1984, p. 5), are influencing components in my fieldwork encounters.

It is not always possible to understand another way of life, another world view completely. I learned that in Toraja 'actions' speak louder than 'words'. The community did not believe my sole intention was to learn how to weave "Toraja style", until I finished my first weaving. It appears my actions were more viable than my verbal pronouncements. After my first weaving was complete the people realized that my intentions were sincere, and that I was serious about my research. The fact that I had spent so much time weaving, as well as recording the weaving process of others reinforced the seriousness and sincerity of my research. With each completed textile, six in total, a new level of respect was achieved. This was also the case when I mastered the technique of warping. Not all the weavers knew how to warp. Once I learned how to warp my image in the village was one of a weaver, and a student.

Unless otherwise stated, the information in this thesis comes from the months of engaging in conversation with the two families and other people I met while in Tana Toraja. The relationships I established provided the foundation to build bonds that encouraged a discourse about life and customs in Tana Toraja. Going to ceremonies, and being involved in the rituals enhanced the spoken word by seeing it all take shape in front of my eyes. My engagement in the daily life of To'Barana' provided me with keen insight into the life of the weavers, while my participation in the weaving process enabled me not only to gather data, but to learn a new skill.

Chapter Four

Ethnographic Notes on the Sa'dan Toraja To'Barana'

In this chapter I briefly outline the culture, beliefs, and social structure of the Sa'dan Toraja. I describe how the Sa'dan Toraja customs and beliefs are significant elements influencing and controlling the behaviour of the To'Barana' weavers.

The Sa'dan Toraja

The Toraja people occupy the Quarles Mountain chain at its highest elevations and central valley. The settlements follow the Sa'dan River. The Sa'dan River begins at the lowland port of Pare Pare on the western side of South Sulawesi, and ends in the Sa'dan Valley (Map 5). Its main tributary is the River Masuppu'. The region in the middle of South Sulawesi has a wet tropical climate with heavy rainfall, and temperatures fluctuating between 26 and 30 degrees centigrade (Kennedy, 1953). West monsoon begins November through to February, with 200 mm of rainfall, accumulating in March and April to between 327 and 335 mm of rainfall (Kennedy, 1953). June to October is the dry season, and it is at this time that the tourists arrive.

The capital of Tana Toraja is Makale, and the other large town is Rantepao (Map 1). There are now daily buses running south to Pare Pare, and Ujung Pandang, the capital of South Sulawesi, and to Palopo, the capital of the Luwu' Regency (Map 5). The road was only recently paved into the highlands, about 1975.

In both Rantepao and Makale there is a post office and a telegraph office, banks, elementary and high schools, churches, as well as a mosque in Rantepao. All the architectural structures are no more than two stories high. Due to the number of tourists passing through Tana Toraja there are small hotels and family-run guest houses, Wisma, as well as a few restaurants and craft shops. There is only one small hospital between Makale and Rantepao, although the local health clinics are open daily. The market is in the centre of

the town beside the bus depot. There is a market everyday which alternates between the different Districts.

To'Barana'

To'Barana' is in the district, or kecamatan of Sesean. Kecamantan Sesean is one of the nine kecamantan of the regency, or kabupaten of Tana Toraja; the acronym for Tana-Toraja is TATOR (Map 1). Tana Toraja is one of the 21 kabupaten in South Sulawesi, the 21st province of the Republic of Indonesia (Map 1, 2).

The Indonesian political borders and structures do not correspond to the Sa'dan Toraja adat, religious laws and customs; adat boundaries exist regardless of years that have past and outside influences. Each kecamatan is made of several desa, groups of villages; within these desa there are many villages, or tondok . The cluster of villages, or desa, are called lembang in Sa'dan Torajan. Thus, To'Barana' is in the desa, or lembang of Sa'dan Malimbong, which in turn is in the kecematan of Sesean in the kabupaten of Tana Toraja.

To'Barana' is situated in the Sa'dan river valley in the northern-most part of the Regency of Tana Toraja (Map 1, 5). The Sa'dan River makes its course around the village creating a picturesque setting of gracefully terraced rice paddies. The rice paddies grow across the Sa'dan River and rise up on Mt. Sesean. The Quarles mountains stand around the entire Regency in a protective vale of varying shades of blue and purple. The Sa'dan River is a deep, and bright orange because of the run-off created by the heavy rains in the monsoon season, November to April. In the dry season it is a clear blue-grey that shimmers with iridescence from the reflecting orange earth and blue sky. The Sa'dan River plays a significant role in the sustenance of the people living along its banks. Perhaps this is why its name is Sa'dan, meaning `sacred' in Toraja, or suci in Indonesian.

The village of To'Barana' is a tourist visiting site, or Obyek Wisata. It

proudly displays the talents of its inhabitants in the form of local and regional textiles being sold in kiosks to foreign and domestic tourists, as well as to the locals (Figure 2). In 1992 an elaborate funeral was held in To'Barana'. The structures set up for the family and guests to sleep and rest in during the funeral ceremony are called lantang. The weaver's choice to weave in the former lantang structures is one of convenience and economic necessity. Previously, these structures would have been taken down in a communal effort after the ceremony.

Sa'dan Toraja women weave in public today as they did in the past. The present weaving site is adapted to selling textiles and to displaying the weaver's talents. It is a social place where the village people gather and converse amongst themselves. It is the locus of the community. Without this setting other weavers from the outlying tondok would not come to To'Barana'. It is here where they sell their textiles, or put them up as commission pieces. Furthermore, it is a location where weavers exchange information. Weavers are able to exchange ideas about selling textiles and weaving textiles. The conversations that take place at the weaving location are about ceremonies and ceremonial obligations, tourism and money, family and children, pigs and buffaloes, as well as other social and cultural activities such as gossip and story telling.

To'Barana' is a small village comprising five nuclear families, all part of one large extended family, or ramage. Ramage is a kinship term describing extended family of matri or patrilineal descent. In Sa'dan Toraja the ramage is called pa' rapuan. This kinship term signifies a kinship group made of three generations or more of smaller nuclear families. Descent is bilateral because the decent of both males and females is reckoned from a common ancestor. However, To'Barana' residence in the village is matri-local. The size of the village varies with the agricultural season, as well as with the school holidays.

To'Barana' has an ancestral house, called tongkonan and rice barns, called alang. It is a symbol of the kinship line and as such is representative of

the unity of the ramage (Figures 3, 4). Tongkonan are founded by the leading ancestor, the first person to found the village. During cermonies it is the social and religious centre because it represents the line of ancestors, all the families that come after the first family. Thus, it links the present families to their ancestors. The old religion of the Sa'dan Toraja is based on the worship of the ancestors, and so it is called Aluk To' dolo, or the "Way of the Ancestors". All families have social ranking depending on the status of their ancestors, and their relationship to the tongkonan. Social status is significant for the weavers because historically, only the highest ranking females were the weavers. However, today this is not always the case.

To'Barana has particularly high status because the tongkonan's founding ancestor was a puang, or prince. Before the Dutch came in 1906, puangs, either male or female, held supreme authority. In To'Barana' there is also a to' Parenge, who is the adat leader; everyone calls him ambe' or father. Today the to' Parenge is an adat form of an administrative leader; thus they maintain their traditional role as ritual initiators, ceremony regulators and organizers, and dispute settlers.

In To'Barana', Nene' Buahlolo was the adat chief for one of the finest and largest funeral ceremonies ever held in Tana Toraja in July, 1992. News of this ceremony was spread to Europe through tourist bureaus; and it had the largest attendence of tourists ever recorded in Tana Toraja. It was at this time that To'Barana' first received electrical power from the turbine in Makale; and the lantang became weaving kiosks. I arrived one year later.

Weaving and subsistence

The Sa'dan Toraja subsistence is agriculturally based in wet rice cultivation. Only the high status families own land in To'Barana'. For the To'Barana' ramage in Sa'dan, the preparation of the fields for the growing of the rice, then transplanting and replanting of the rice paddy takes a whole month. The harvest is six months later, although in Sa'dan the fields alternate between

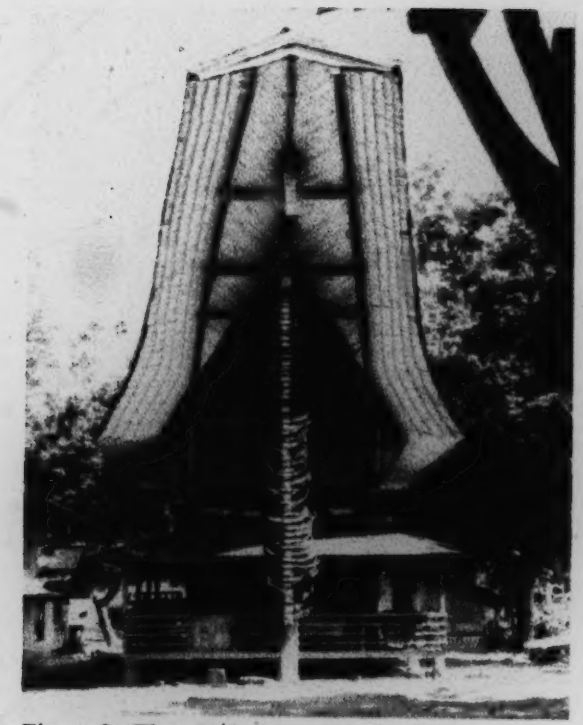

Figure 3. The tongkonan, ancestor house, in To'Barana, Sa'dan Sesean. (Photograph by Maria Christou, 1993).

Figure 4. The ricebarns opposite the ancestor house in To'Barana, Sa'dan Sesean. Harvested rice is being put into the ricebarns. (Photograph by Maria Christou, 1994).

planting and harvesting of the rice field, padi, so there is always an abundance of beras, rice with the husk, to dehusk into bobo, rice without husk. The beras was kept in the alang and taken out when needed (Figure 4). During harvest the weavers in To'Barana' would all cooperate and help put the beras in the rice barns after it was thoroughly dried in the sun.

Previously, every person who worked in the harvesting and planting of rice earned a portion of that rice. Today there is also monetary payment for labour. There is discomfort with making payments in a monetary form of exchange because formerly distribution followed the adat laws, whereas today a capital economic system is extending over the traditional system of exchange. The economic structure is altered, and developed. People of less status that were previously obligated to labour for the nobility are now being paid wage labour, and this is altering the social structure. Consequently, in To'Barana', the high status women have to sell textiles and weave in the tourist season. Their profits support the demands of higher labour costs that they now have to pay out in order to plant and harvest the extended family's rice padi.

In addition to agricultural demands, the weaver has her daily household chores, which include her role as a mother and wife. In To'Barana' young girls begin to help at the age of five and six with chores and with care of baby siblings or the babies of extended family members. Girls also begin to weave at this age.

It is only after meals are prepared that the women weave their textiles. All three meals are servings of rice and a single source of high protein in the form of dried meat or fish, or occasionally poultry from cock fights, or other ceremonies. After boiling water in the morning and making the breakfast rice for everyone, pig food preparation comes next. It is the responsibility of women to look after the pigs because they own them. There is alot of work required in caring for the pigs. The pigs have to be fed twice a day with a special diet of a green leafy vegetable and rice husk mixture, cooked until well stewed. The weavers are responsible for the cost of caring for the pigs. Thus, pigs and textiles are

symbolic of femaleness. Moreover, pigs, textiles and weaving skills are a sign of a woman's wealth and status.

Pigs and buffalo are important for ritual and economic reasons, but the buffalo are used only for ritual slaughter in the mortuary ceremony. Pigs are ritually slaughtered at house raising ceremonies, repair of rice barns, weddings and other rituals associated with growth, fertility and prosperity. The weavers saved money to buy more pigs and buffaloes for all future ceremonies where these animals would be sacrificed.

Family honour and status are important values for Sa'dan Toraja, thus it is these beliefs that motivate the To'Barana' weavers to sell textiles. The more animals that were sacrificed the higher the honour and the status of the family would rise; therefore, selling textiles to buy more animals was the highest priority for the To'Barana' weavers.

Mortuary customs and beliefs

The religion of the Sa'dan Toraja is primarily Christian, but the majority of people adhere to the adat of Aluk To'dolo. There is no word in Sa'dan Toraja for 'religion' (Volkman, 1985). The belief system of the Sa'dan Toraja is a form of ancestor worship. Aluk, refers to the "process" of how daily life and rituals are to be conducted; while to'dolo refers to "the ancestors", therefore, Aluk To'dolo, is "the way of the ancestors" (Volkman, 1985). This means that everything in life has an organized set of rules; and this is the Sa'dan Toraja adat. Adat is the set of rules and conduct.

Ritual accompanies the life cycle of plants, animals and humans. Thus, it is tied to the agricultural cycle, ie. harvesting and planting rice; birth, death, and fertility of humans and animals. The rituals follow adat.

An important belief is that there must be an exchange of gifts and blessings between the family and its ancestors (Volkman, 1985). At a funeral ceremony the buffalo and pigs are sacrificed for the ancestors. The yearly cycle of life has an accompanying array of rituals; and all these rituals are run

according to adat. It is a cycle of "smoke rising", rambu tuka', and "smoke descending", rambu solo. In Aluk To'dolo the buffalo are accumulated for the purpose of sacrifice at funeral ceremonies. The number of buffalos slaughtered depends on the status of the deceased.

Accordingly, this spatial designation is associated with: fertility, ceremonies celebrating births and marriages; agriculture for a successful planting of the first seedlings and a bountiful harvest, and the well-being and prosperity of the household and house, especially a new family tongkonan, ma' papa. On the other hand, "smoke descending" ceremonies, or rituals of the western-southern hemisphere, are associated with death and the land of the dead, or ancestors. Funeral ceremonies correspond to this spatial designation.

The district of To'Barana', Sa'dan Sesean, is renowned for its sacrifice of over a hundred buffalo, and several hundred pigs at both funeral and marriage ceremonies. The funeral season is during the dry season, between June and October. The ceremonies associated with life,[4] or "smoke is rising" rituals, occur in the wet season. "Smoke is descending" rituals, or rituals of the west and southwest, occur in the dry season.

The funeral ceremony is why the tourists come to Sulawesi. They want to witness "ancestor cults" and to view death ceremonies. Consequently, weavers of To'Barana' sell most of their textiles during the funeral season (June to October) when the influx of tourists is greatest. It is more economical for them to sell textiles, rather than to weave more textiles at this time; although they weave continually, the production of textiles is lower at this time of year.

The funeral ceremonies can last for months and all the invited guests set up camp in the make shift shelters, lantang, of bamboo and palm branches

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The eastern rituals also use the tree of life symbol at the bua' and merok feasts. The sacred trees are the Barana' (Ficus religiosa) and the sendana (Sandlewood); they are cosmic symbols because with their roots and their branches they connect earth with the firmament (Nooy-Palm, 1989, p. 178). To'Barana' means people of the banyan trees.

decorated with twined mats, partions, and coverings. If twined bamboo and palm branches are not available, the outside of the lantang will be painted to imitate a twined weave design. At the funeral, people are fed by the female members of the family who are the closest kin to the deceased. The weavers in To'Barana' would prepare for one or more days for such occasions depending on the relationship with the deceased. All the extended family of the tongkonan comes to the funeral including guests both invited and uninvited. Everyone who comes to pay respect to the deceased is given coffee, and special rice cake, sirih, betel nut chews, and tobacco. At night the ma' badong dance begins and the priest leads the group through the life of the deceased singing and chanting his/her life story. Anyone may join at anytime. If the deceased was a weaver the song would tell of her skill as weaver, the beauty of her textiles, and how beautiful she looked as she wove.

After the buffalo and pigs are sacrificed the meat is divided amongst the extended family and guests. The division of the meat is descriptive of social status; and therefore honour or shame, called siri', may result depending on these transactions (Volkman, 1985). A person may be given an equal portion of meat and thus, clearing a former debt, or not enough meat is given and a debt remains, as well as resentment against the family distributing the meat. To reiterate, weavers must save money to buy buffalo and pigs because the family honour and status depend on the payment of these debts. The high costs of slaughtering buffalo plays a vital role in the economics for not only the living families, but also the families of the future because debts can be inherited. The debt becomes a burden for future family. Furthermore, the resourcefulness of the weaver becomes charged with the need to accumulate buffalo and pigs.

To'Barana' weavers would only stay at funeral ceremonies for one or two nights. Because of their need to sell textiles they were not absent from the village for long stretches of time. As I stated before, it is when there are funeral ceremonies that most tourists come to Tana Toraja. The weavers had to be in

To'Barana' in order to take advantage of this time to sell most of their textiles. Thus, selling textiles is a seasonal activity like the rituals of the east and the west, and the planting and harvesting of rice.

Economics and the To'Barana' weavers

Economically the weavers are constantly stressed by the insecure seasonal nature of textile sales. They sell their textiles in order to pay for labour during the planting and harvesting seasons, to buy pigs and buffalo for ceremonies in order to clear debts, gain status, or remain equal socially, and to pay for their children's education.

In To'Barana', weaving production is influenced by the outside economic forces of domestic and foreign tourism, and socially from the effects of modernization, in the form of higher education and a market economy. Politically, the pressure to form a government sponsored co-operative is having an effect on the lives of the weavers.

In spite of the social and economic changes, the To'Barana weavers maintain their traditional weaving technology and techniques. No aspect of the loom has been modified or changed to suit the needs of the changing world of the Sa'dan Torajan weaver. Other traditional aspects of weaving are also maintained. For example, the weavers will weave specific colours during the different phases of the agricultural cycle, which also correspond to the ceremonies accompanying and/or occurring during an agricultural cycle.

Nonetheless, what has altered is the world view of the weaver. How much this world view has changed cannot be estimated, except from within the culture itself. What is observable is the weaver's attitude towards weaving. It is not the same as in the past. Today women view their textiles as commodities to be sold to people outside of their social and cultural context. The commodification of textiles represents a profound change for Sa'dan Toraja weaving. The market has altered the world view of the weavers of textiles and the people who use the textiles. Previously, weaving was significant from a

cultural and social perspective, whereas now, this perspective has changed to view the weaving process and resulting textiles as a way to gain economically for the purpose of paying for labour during the agriculturally active seasons, to buy pigs and buffalo for ceremonies, and to pay for educating children. Despite the shift in the meaning of weaving in To'Barana', the weavers use the same weaving process, loom technology and decorative techniques in order to fulfill their responsibilities and obligation to their family and community. The weaving persists, and although the quality is lower in some instances, this is not the case always. The Sa'dan Toraja value weaving skills, and this is what maintains the quality of weaving and the weaving technology.

Tourism and weaving in To'Barana'

Tourism reinforces modern ideas into To'Barana'. It competes with the traditional cultural patterns and world view of the people. There is a positive effect with the in-coming tourists because To'Barana' is made visible, and thus, ethnically defined by its popularity as an Obyek Wisata. To'Barana' benefited from its popularity economically, and socially in terms of status. In Tana Toraja there is a renewal of cultural and social identity through the revival of religious ceremonies based on the old religion, or Aluk To'dolo. Weaving fits into this paradigm because it too is revived. The Sa'dan Toraja value weaving as an ethnic symbol representative of themselves; and therefore proudly display it to foreign and domestic tourists.

The quality of the textiles produced is somewhat lowered because the production time must be speeded up. The textile design has become more limited in scope because the more complicated the motifs and patterns are, the more time it takes to weave them. The size of the textiles is also reduced to save time in weaving. The smaller textiles use less materials, so they cost less to weave, and yet they may be sold at the same price as the regular sized textile. The smaller sized textiles are more portable for the tourists. However, the weavers are proud of their textiles and wish to be known for their skills at

weaving; therefore, the quality is not low for textiles sold locally.

The weaving co-operative

There are four weaving villages in Kecematan Sesean, Desa Malimbong-Sa'dan: *To'Barana*, *Sangkombong*, *Matallo*, and *Sankaropi* (Map 1). All of the weaving villages in Sa'dan belong to a co-operative. The weavers from all of these villages bring their textiles to To'Barana' to sell in the weaving kiosks to tourists. It was only after living in To'Barana' for four months that I knew of the existence of the co-operative because nobody ever talks about it, or even acts like it exists. Most of the To'Barana' weavers do not comply with the co-operative's organizational procedures, regulations, and demands. In fact, there is outward aversion to its appearance in To'Barana' because of the co-operative manager's social rank. The manager organized the co-operative and applied for the government assistantship. She is a highly educated and independent woman. The lack of success the co-operative has had in Sa'dan Sesean is indirectly attributed to the social status and power conflicts that exist among the high status ramages.

Due to the structure of the social organization in To'Barana' the people of high status do not regard outside government imposed programs with a positive attitude. They do not care to have outside forces interfere with local government and politics as they relate to the economic and social well-being of the community. Personal conflicts also inhibit relations within the co-operative and cause it to be stagnant for long periods of time, or until a mediator, such as a To' Parenge steps in and helps negotiate certain terms and conditions that will make the unhappy parties comply with the way the co-operative is organized. Thus, To'Barana' as a weaving co-operative is not successful.

In contrast, To'Barana as a tourist site of interest, or Obyek Wisata, is very successful. The village receives 1000 rupiah from each visitor coming into the weaving village compound. Any monies collected from the entrance fee, or from traditional performances put on by the community go into the communal

fund and are used for community projects.[5] All the communal funds are kept by the woman of highest status, Nene' Ratih; she is the eldest sister of one of the five groups of sisters that are part of the ramage of To'Barana.

Weaving and status

As stated earlier, residence in Sa'dan Toraja is matri-local, and kinship is bilateral, or ambi-lineal. Status is directly related to weaving. Weaving is a privilege for the high status women of Sa'dan. Most of the women enjoy weaving, while a few complain that weaving is too hard on their backs. Women with a high education do not weave because they think it is beneath their newly acquired knowledge. This is usually the case with the younger generation, unlike the older generation women such as Nene Buahlolo'.

Nene' Buahlolo' weaves, and she is the District school principal. Due to her high status, she is obligated to participate in all the ramage ceremonies and celebrations. Nene' Buahlolo' also took care of all her grandchildren while her daughters worked selling textiles or weaving. Occasionally she would roll out her loom and weave with a speed and rhythm that were unmatched by any weaver, except her daughter, Mama Sabi'. These textiles were not woven to be sold; instead they were used for the family's needs. Her sisters, Nene' Ratih and Nene' Bamba, enjoyed sewing, and so no longer wove textiles. Unlike their sister, Nene' Buahlolo', they have not passed on their skill and knowledge of weaving to their daughters, and granddaughters.

Knowledge of weaving is passed from mother to daughter, or grandmother to granddaughter. Children begin to weave as early as six years of age, although this is changing due to the formal education system. Children now begin school at six years of age. In To'Barana', the high status of the village

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When it was time to remove and repair the roof of the family's most prestigious and high status rice barn, or alang, the monies collected were used to buy materials and pay for the labour of its renewal. Great celebration went into its destruction and reconstruction.

promotes more weaving because high status women weave. Today, due to the commercial visiblity of weaving in To' Barana, the children of all status groups are exposed to weaving; weaving surrounds their daily life more so than the non-tourist weaving villages of Matallo, Sangkombong, and Sangkaropi. Furthermore, children of all status groups are now able to weave if they can afford the materials and the tools for weaving.

The cost of materials used for weaving is high, and thus it is not possible to weave for some women regardless of their status. For example, one bundle, or a large arm load of wood, costs 1,000 rupiah, and this is used to boil water, and cook the rice and pig's food each morning.

Colour and weaving

There are colour prohibitions in weavings in Sa'dan Toraja as in many Indonesian cultures. "In certain cases, legends warn against the simultaneous use of redbrown dyes and blueblack dyes. Such beliefs arise out of the conflicting qualities associated with red and black in Southeast Asian cosmology" (Maxwell, 1990, p. 145). I was told by the weavers that for my blue warp, white, yellows, oranges, and reds could be used, whereas for my red textile, white, yellow, green, black, should be used. Blue and purple were not to be used with my red warps. Colour has symbolic meaning because it relates to the agricultural cycles and funerals,[6] thus, the beliefs concerning life and death. Other Indonesian textile studies have included the symbolism of colour and

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I used to wear a dark purple and a black sarong on top of my tee shirt and shorts. I was wearing this ensemble at the time of harvest and my adoptive father, Nene' Buahlolo reprimanded me for wearing dark colours. He told me that purple and black are worn at funerals. Om' Manangka and Nene' Juni explained the significance of colour and meaning in Sa'dan to me. The colour schemes of the weavers then became obvious because they all used the same colours depending on the agricultural season. The agricultural seasons correspond to the ritual cycle (Volkman, 1985). Nene' Juni actually wore colours that corresponded to the textile she was weaving. Furthermore, my final piece that I warped is all white. I learned later that white is used only by high status elders, such as To' parenge.

textiles, as they relate to ritual, sacredness, and agriculture (Heringa, 1989; Nabholz-Kartaschoff, 1989; Niessen, 1985).

At the end of the funeral season, November to May, the colours red, yellow, orange, blue, and green are worn, whereas, during the funeral ceremony season people wear subdued colours, and mostly black and purple. "Like most Sa'dan Toraja funeral garments, after weaving it has been dyed black, apparently with crushed Homolanthus populneas leaves and mud. Articles of clothing of the deceased are ceremonially blackened with leaves and mud, and it seems that the hoods [pote'] worn by Sa'dan Toraja widows were also coloured in this way" (Solyom and Solyom, 1985, p. 47; see also Nooy-Palm, 1975, p. 66).

Textiles and Habitation

Tongkonan, are decorated with patterns and motifs similar to those found on textiles. As in many eastern Indonesian cultures, the house is a cosmological and cultural category (Fox, 1980; McKinnon, 1992; Niessen, 1985; Traube, 1986; Volkman, 1985). Design elements of textiles, such as layout, scale, size, colour, patterns, and motifs, are repeated on the surface of houses and rice barns, and historically on coffins (Figure 5). Textiles and houses have a religious relationship with each other, as well as stylistic similarity (Nooy-Palm, 1982, 1989). Textiles are used to wrap around the tongkonan and the alang during Aluk To'dolo ceremonies. Figure 6 depicts a tongkonan from Kete' Kesu' wrapped and decorated with all the heirloom textiles of the ramage.

People use palm fronds to build the lantang. These are painted with patterns that replicate the twill weave structure. If plain plywood is used then it will be painted as if it is a plaited surface with weave structures. In Tana Toraja's upper Sa'dan valley, supplementary weft textiles are being woven, displayed, used and sold by the weavers of To'Barana', Matallo, Sankombong, and Sangkaropi villages of Sa'dan Sesean. However, they have not been studied and documented from an artistic, technical, or socio-cultural point of view.

Figure 5. In To'Barana, the designs on the ricebarns, and on the ancestor house, are identical to the designs woven on the textiles. (Photograph by Maria Christou, 1993).

Figure 6. An ancestor ho
south of Rantepao. Texti
around the house for ritua
ceremonies. The designs
the same as the designs c
the house. (Photograph b
1994).

An ancestor house in Kete' Kesu',
antepao. Textiles are wrapped
house for ritual purposes during
s. The designs on the textiles are
s the designs carved and painted on
(Photograph by Maria Christou,

Chapter Five

Research Findings

This chapter documents the loom and weaving of the To'Barana', Sa'dan Toraja. It describes in detail the technical procedures involved in preparing the warp, setting up the loom, and weaving supplementary weft textiles. To my knowledge the following data on Sa'dan Toraja To'Barana' weaving techniques and loom technology have not been previously recorded. This information may be necessary for future comparative cross-cultural studies of textiles, supplementary weft techniques, twill float weaves, and looms. The above areas offer valid insights into cultural history.

Sa'dan Toraja weaving in To'Barana'

Weaving in To'Barana is done on a backstrap, body-tension loom. The loom consists of: circular warp, backstrap, two cloth beams, large sword, one main heddle rod with continuous alternate heddles, four pattern heddles with continuous spiral heddles, small sword for supplementary weft techniques, shed roll, coil rod, and a warp beam (Figures 1a, 7).

In addition to these loom parts, there are other looming implements: the weft threads, the bobbins, the shuttle, a swift, and a spool holder. Wax is used to polish the swords and other implements, so it is kept in the weaver's sirih bag, seppo' or tjapio. This bag holds all the ingredients used for betel chewing. A section of coconut husk is kept close at hand to comb the warps. A knife is kept in the seppo' for cutting threads, and for splitting the betel. The men always make three parts of the loom; the weaver's husband makes the shuttle, sword, and the cloth beams. All the other parts can be easily made by the weavers themselves. All the loom parts, except for the sword and the cloth beams, are made of varying lengths and sizes of bamboo. Ebony or acreca is used for the cloth beams and sword.

The warp is held fast between a cloth and warp beam, which in turn is held taut or slackened between the weaver's body, using the backstrap that she

Figure 7. Sa'dan To'Barana' Toraja body-tension loom. Set up for weaving in front of weaver's house. There are no pattern heddle rods on this loom because a cloth is being made in plain weave. The motifs incised and painted on the facade of house are the same as the ones incised and painted on the wooden ancestor houses. (Photograph by Maria Christou, 1993).

can push herself against or not, and the brace onto which the warp beam is attached (Figure 1a, 8). It is the weaver's body which regulates the motion of the loom. The backstrap loom's design objective is to control the tension of the warp between the weaver's body and the warp beam. It is the weaver's strength and rhythm of movement that sets to motion the loom.

After the warping process the warp is carried to the place where the weaving will take place. The loom can be set up, and easily stored anywhere because of its design. In Sa'dan it is set up in the public domain. The warp is at an approximately 45 degree angle to the cloth beam (Figure 8). The shed roll holds the warp threads separated from the alternate warp ends; it maintains the natural shed (Figure 1a). It is used to change the sheds for both plain weave and supplementary weft weaving. Hence, its use is to maintain and make the natural shed for the weft thread to go through.

The sword is used to beat in the weft elements after they are thrown through the web, or sheds (Figure 1a). It also keeps the various sheds for the weft elements to pass through. The beating of the weft thread must be done only once and with a slam! The weft thread must not be compacted too much or it will change the surface of the textile. It must be evenly beaten throughout the entire weaving because a good quality cloth has even spaces between the weft yarns.

The bobbin, in a bobbin holder[7], or on its own, carries the weft elements through the warp sheds. A bobbin, or a bamboo rod wound with weft elements, is inserted into the bobbin holder, also a piece of bamboo, and secured in place with cloth, or raw cotton. Bobbin holders are made by the husband of the weaver. They may not be shared, loaned, or sold because of their special meaning. It is symbolic of the bond between a husband and a wife. Only married weavers use shuttles.

I use the term bobbin holder instead of "shuttle" because the former is a more accurate descriptor.

Figure 8. I am weaving a supplementary weft textile (the textile featured throughout this thesis) on a Sa'dan Toraja loom under the watchful eye of my weaving teacher Nene' Butong. (Photograph by Salogung, 1993).

The main heddle rod and heddle cord lifts the odd warps (Figure 1a). The heddle cord is tied to the outermost warps, and then every alternate warp. This creates the alternate shed. The alternating of the shed roll and the main heddle rod creates the plain, or tabby weave. Thus, two sheds are formed for the weft elements to be thrown in alternately. There must be alternate, or odd and even, or natural and countersheds in order for a cloth to form a plain weave.

The warp is circular and continuous. The cloth beam is made of two beams fitted together (Figure 9). One beam is inserted into the warp, and the other lies on top of the warp. The two beams are clamped together and the warp is wound around both beams. Thus, the warp may be several metres in length. When the warp directly in front of the weaver is woven she releases the ties that secure her two breast beams and releases the warp. The warp moves in a circle around the warp beam and one of the cloth beams.

The loom dictates the number of possible variations and limitations of weaving. The length may be several metres, depending on the weaver's strength. Plain weave, striped, and checked textiles were up to ten metres in length. This contrasts with a foot-braced loom because on this loom the warp is twice as long as the weaver's legs (it is a circular warp). The width of the cloth is limited because of the loom structure. The cloth beam is approximately forty inches long. In Sa'dan Toraja the width of the cloth is no longer than the length of a weaver's arm.

The Sa'dan loom is set up to weave supplementary weft patterns and motifs. Discontinuous supplementary weft patterns use three sheds, while continuous supplementary weft patterns use four or five sheds. The supplementary weft designs are variations of the twill technique. They are twill float weaves. The simplest unit for a twill weave is two over and one under twill, ie. the weft goes over two warps and under one warp. To make a two and one under twill one needs a mechanism to produce three sheds.

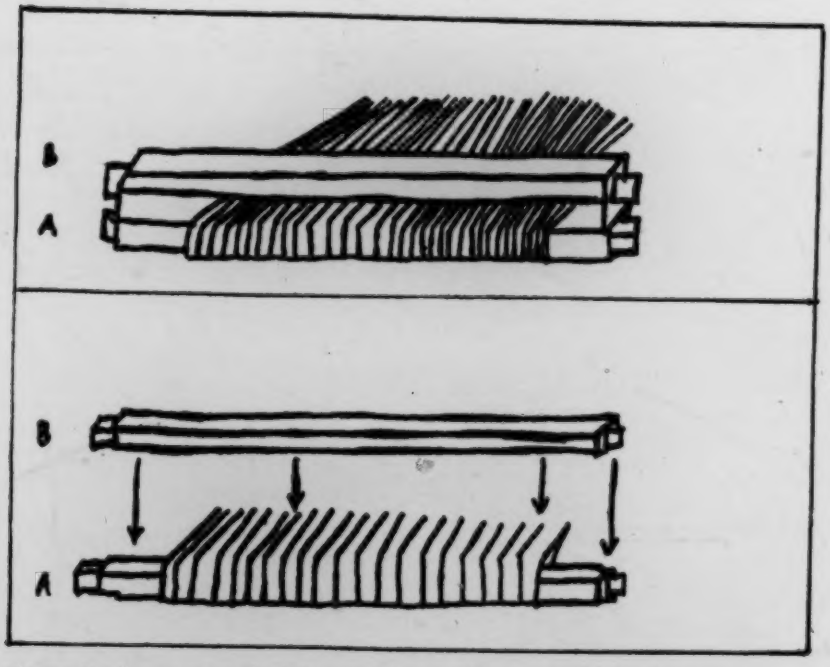

Figure 9. A two-part cloth beam. Beam A is inserted into the warp. Beam B is layed overtop of beam A and warp. Both A and B beams are folded over onto each other, so that the warp is secured between each beam.

Warping up

The most significant procedure in weaving is the process of warping. Warping integrates weaving techniques and loom technology. The warping method fits with the loom because the parts of the warping frame are later replaced by the parts of the loom (Figure 10a, 10b). Thus, the warping process and the loom type are integrated; therefore, one cannot be understood without knowledge of the other. The loom type dictates the warping procedure. The warping elements are wound around a wooden warping frame with removable and adjustable pegs. From the beginning until the end, the thread is wound in one continous gesture. After the warping is finished, the warp is secured with several ties to support the warp when it is carried to the weaving location.

By observing the warping process one may determine the type of loom to be used to create the desired textile design and size. The heddles control the pattern of the warp yarns, ie. they lift the warp yarns. The number of heddles and the heddle order is determined at the time of warping (Figure 11a, 11b). The Sa'dan Toraja use a single continuous cord as the heddles. The heddle rod is inserted in the heddles after the warping is finished. They are called continuous alternate loop heddles (Figure 12a, 12b, 12c, 12d). The warping process sets up the structure of the loom, that is, if a coil rod will be used or cross sticks.

At no time may a person interrupt the warping process.[8] Interrupting the process will cause uneven tension in the warp because the warp is continuous

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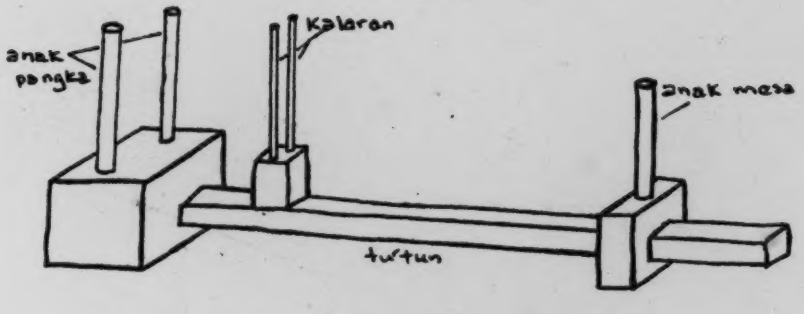
According to Maxwell (1990) there much taboo involved with the warping process. She states that it is usually considered the most vulnerable stage in the weaving process. I was informed by my weaving teacher Nene Juni, that the warping process is a time of silence and should be a respected activity. Maxwell (1990) states that "although there are practical reasons for the accurate measuring out of the thread to proceed without interruption when using a continuous warp weaving technique, explanations based upon the role of demons and spirits often take precedence" (p. 146).



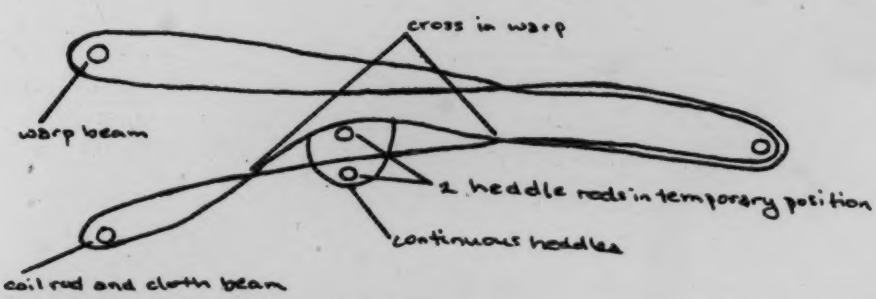
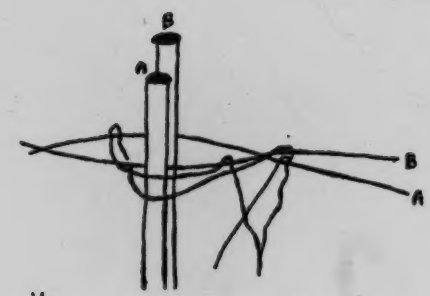
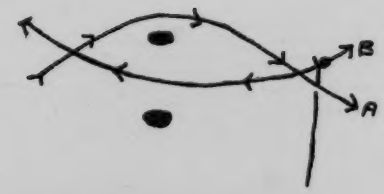


Figure 10a. The Sa'dan Toraja warping frame.
Figure 10b. A view of the warp on the loom from above.

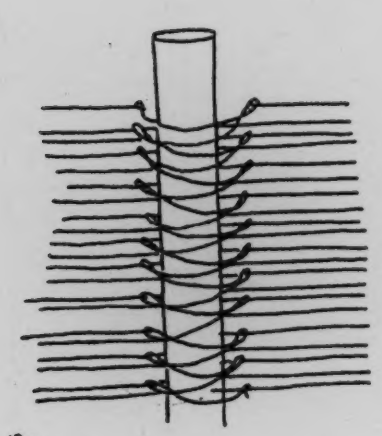


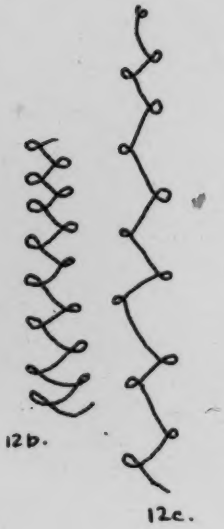
11a.



11b.

Figure 11a. Rod B supports the cross and rod A supports the string heddles. The heddles alternate between the warps in the cross, thus forming alternate heddles.
Figure 11b. A view of the two warp rods from above. Rod B holds the cross in the warp. The heddle string is started from warp B.





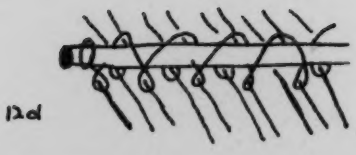


Figure 12 a. The alternate heddles on the warping rod.
Figure 12b. An abstract view of the alternate heddles off the warping rod.
Figure 12c. An abstract view of the elongated alternate heddles off the warping rod.
Figure 12d. The heddle rod inserted in the alternated heddles.

and circular. The warps must all be equal in length, with even tension throughout. If the warp was made with uneven tension then the cloth and warp beams will not be in parallel alignment. Knowledge and skill create perfect continuous and circular warps ready for the loom.

The patterns are planned at the time of warping and when the loom is being set up. Each winding of the warp around the warping pegs is counted off depending on the type of textile. For example, when I observed the warping process, in Sangkombong, for a striped textile called pa'miring, the warping method was slightly different. The weaver counted off each colour, tied it off onto another colour, then proceded to warp the next colour until the next time she chose to change the colour (Figure 13, 14). Thus, each textile type is decided upon at the time of warping, or when setting up the loom. Depending on what decorative technique is necessary to weave a particular textile type (see Appendix A), the weaver will alter the warping process and set up the loom accordingly. However, every weaver in Sa'dan follows the same warping method, ie. continuous alternate loop heddles are used each time. The warping frame is also the same.

The To'Barana' warping method was slightly different from the warping method used in Sangkombong because the To'Barana weavers preferred to weave pa'ruki, or supplementary weft designs, and not the long plain, striped, and checked textiles favoured by the weavers in Sangkombong. However, the weavers in both villages wove all the textile types; therefore, they had the knowledge to warp any one of these textile types.

Description of the warping process

The warping process is called ma'renden in the Sa'dan Toraja language. The warp is called dorianna. The finished warp is called the renden tanun. The heddle cord is called the kala', and the heddle rod tingke kala'. It is mentioned in a Sa'dan Toraja ritual verse as the tintian kala' (Van der Veen, 1965, p. 34). Four spools of thread are put onto the pegs of two spool holders, called

Figure 13. Nene' Ita is warping a striped textile in the village of Sangkombong, Sa'dan Sesean. After each pass around the warping frame the warp ends are cut and tied to another colour of yarn. A striped textile will result using this warping method. (Photograph by Maria Christou, 1994).

Figure 14. The heddles are added to the warp during each pass around the warping frame. The heddles are created from one contiuous string. (Photograph by Maria Christou, 1994).

pangurean (Figure 15). Two threads from two of the spools off one of the pangurean are knotted together with the other two threads coming from the second pangurean. The warp is made from two sister yarns. Thus, four warps are reeled off the spools of yarn at the same time; stretching parallel to one another. The weaver holds all four yarns in her right hand, two between the index and middle finger, and two between the middle and ring finger, and follows the length of the warping frame called the tu'tun (Figure 10a, 13).

The sequence is as follows: the warp goes around a peg, called the anak mesa, located at one end of the warping frame, and up between the future heddle rod peg, called the kalaran; then around the pegs, called the anak pangka, located at the other end of the warping frame (Figure 10a, 10b). Once these two warps are tied together with a simple knot, there are four yarns in all. These are looped around one of the anak pangka pegs (Figure 13a, 13b). Once a complete turn is made around both the anak pangka and the anak mesa pegs at each end of the warping frame, the heddles' cord is tied to the inside warp nearest to the centre peg, the kalaran (Figure 10a, 10b)). After each complete turn around the warping board the heddle cord is switched to the other side of the kalaran (Figure 11a, 11b). Thus, the heddles are inserted as the warping proceeds.

At the end of the warping the warp is secured with several ties, so when it is removed from the warping frame it does not become tangled, or have any of the warps become stretched out of place. The coil rod, called the limuluan, is inserted in the end with one of the anak pangka pegs; it is slipped into the end closest to the heddle system in order to keep the cross and the warps in order.

Weaving and warping yarns

The warping and weaving medium the weavers worked with was a 2/2 ply polyester cotton blend sewing thread. It was purchased from the market in Ujung Pandang, or from the manager of the Sa'dan, Sesean weaving co-operative. The weavers also use hand spun cotton from Sa'dan and directly

Figure 15. Nene' Basi is spinning cotton. This cotton is from the cotton bushes grown in To'Barana. This warping mill is also used for winding yarn onto bobbins from skeins of yarn. (Photograph by Maria Christou, 1994).

from To'Barana' (Figure 15).

More conservative weavers, such as Nene' Juni, are considered by the other weavers to be less innovative because they use traditional dyes and hand-spun cotton yarn. The poly/cotton blend could be obtained in many bright, wash-fast colours; and once woven had a sleek appearance. The weaving of these threads was easier because they were smooth and there was less abrasion. Due to the high warp count (yarns/cm) there is a high degree of abrasion as the warp ends pass each other with each change of the sheds. The friction causes warps to break. The stronger more elastic quality of the polyester cotton blend thread makes it more resistant to breakage. The home spun cotton is more apt to break because it is a single yarn, especially if it is dyed with natural dyes. The natural dyes have excess natural matter in them, which is left on the surface of the single cotton yarn. Every time the shed is changed the yarns become weakened due to the abrasiveness of the excess dye particles on the yarns. The natural dyes does not chemically bond with the cotton fibre like a fibre reactive dye used on modern cotton. In addition to the regular alternating of the shed, the manipulation of the warp for the addition of the supplementary weft patterns and motifs, also causes broken warps due to abrasion. Nene' Juni compensated for this by using a mixture of rice and water in the form of a paste on her yarns before the weaving began. She starched her warp before weaving, so that the yarns would be smoother.

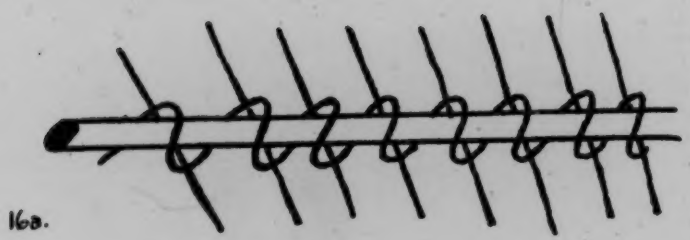
The intended length, and width of the textile, as well as the number of stripes, and/or colours wanted in the textile, influence the amount of time spent warping up. The entire warping process for the widest textile possible on the To'Barana' Sa'dan loom, takes four hours for a skilled weaver like Nene' Juni. Other weavers may take six hours. Nene' Juni, said it is not good to talk, or be distracted when warping. This is especially important for the precision and accuracy needed in counting off the threads, and inserting the heddle cord from side to side after each complete turn around the warping frame. If the warping is

not done carefully the winding of the warp thread could miss a peg, which results in one short loop; or if the thread is wound around the wrong peg crossed threads will occur; and if some threads are not looped with the heddle cord they will not have a heddle to control them when it comes time for weaving. These problems, as well as uneven tension may result from too many interruptions.

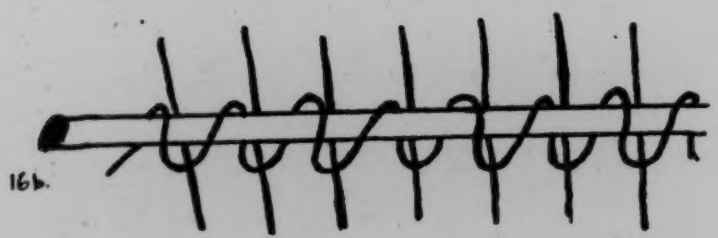
The shed and the cross

The shed is the space that is created when one set of warp elements is raised and the other set is lowered. Thus, the natural shed has the even warps raised and the counter shed has the odd warps raised. The warps become interlaced alternately with each throw of the weft through the shed. The web is the space created by the shed. The shed is facilitated by the cross in the warp. The cross is a figure eight pattern in the warp yarns (Figure 10b, 11b). On the warping frame, the cross is fixed in place (Figure 11a, 14). Later this cord is a continuous alternate single loop set of heddles (Figure 16b). In Sa'dan Toraja the weavers use a single heddle rod in one set of alternate continuous looped heddles; it is this heddle rod that controls the heddles (Figure 12a-d). Below I will discuss how the supplementary weft pattern heddles have a spiral formation (Figure 16a).

I make the distinction between a shedding *device* (the heddle cord and heddle rod), and a shedding *mechanism* (the heddle cord, heddle rod, and shed roll) because in some instances the shed roll may or not be present. However, in Sa'dan Toraja the shed roll remains in the warp throughout the entire weaving process for both plain and supplementary weaving. The shedding device controls the warp because each odd warp that forms the counter shed is carried by the heddle cord. Making and maintaining the cross by means of a heddle cord during the warping process requires skill and expertise. The concentration and precision in motion are important factors that determine the resulting shedding device. The continous heddles manipulate the warp once all the beams and rods are inserted into the warp. It is important to remember that the



16a.



16b.

Figure 16 a. The spiral continuous heddles are made after the warp is on the loom. Spiral heddles are only used for weaving supplementary weft techniques.

Figure 16b. The alternate continuous heddles are made during the warping process, that is, while the warp is still on the frame. Alternate heddles are used for plain weave textiles. However, they are also used for weaving supplementary weft techniques. A weft of plain weave is woven after each shot of supplementary weft in order to form the ground weave.

heddles are continuous, so when the weaver pulls the heddle rod up, half the warp is raised. Only half the warp is raised because the heddle cord lifts up every four warps alternately in order to create the counter shed.

The shedding *mechanism* consists of the heddle rod, heddles, and the shed roll. When alternately manipulated, two different sheds are created, the natural shed and the counter shed. In order to make the counter shed the heddle rod is pulled up from the centre of the rod, making sure no heddles are caught between the fingers. By lifting the heddle rod every other warp is pulled up by the heddles. These are the odd warps. At the same time the weaver must move forward easing the tension on the warp. She does this by easing off the pressure of her legs from the wooden brace that her feet are pushing on, and leans forward (Figure 8). She no longer pushes against her backstrap. Once the tension is released the weaver can lift the heddle rod and heddles creating a loose shed.

In the resting position the warps are all still, that is, there are no movements made by the weaver. The weaver changes the shed back to the resting position, ie. natural shed, by moving the shed roll forward and back again, while her legs are pushing against a wooden brace. She is now leaning back onto her backstrap. The loom and the weaver's body make the warp taut, so when the shed roll is moved forward and back the warps change sheds again. This creates the natural shed which brings up the even warps (the warps on top of the shed roll). When the weaver alternates between moving forward, and lifting the heddle rod and heddles; and leaning back in her backstrap, keeping her legs straight out in front of her braced against wooden blocks with her feet, and moving the shed roll forward and back again down the warp, she is in the weaving motion.

Moving the body in combination with changing the shed in an alternating sequence is the process of weaving on a backstrap loom. The warps are being picked up causing a change between the counter and natural shed. Once the

weft yarn is thrown through one of the sheds, the alternate warps keep the weft tied down when the shed is again changed. Repeating this process creates a plain weave cloth. The position and motion of the weaver's body slackens the warp in time with her manipulating the shedding mechanism and enables her to throw the weft elements with a bobbin, and/or a bobbin holder through the shed. Thus, the control and regulation of the tension of the warp by the weaver's body, is an important factor in the weaving process.

Setting up the loom for weaving

After warping the weaver selects a location to set up her loom that is comfortable and convenient. The backstrap loom with a continuous warp can be easily set up, and rolled away after each weaving occasion. It is portable. All these factors suit the lifestyle of the To'Barana' women. In the case of the To'Barana' weavers, they weave in their individual kiosks, or former lantang.

The warp is laid on the bamboo floor of the former lantang. The weaver arranges the warp, working her skilled and patient fingers over and under the warp, inserting the rolls, rods, and sword in their appropriate places. The kalaran peg from the centre of the warping frame (Figure 10a, 17) was removed with the warp from the warping frame. It is kept in the warp in order to maintain the cross, and thus, the order of the continuous loop heddles. It will be removed once the heddle rod, or doke doke is inserted in the warp (Figure 17). Thus, the warp was carried down to the weaving site on the kalaran peg, along with the coil rod, or limuluan. The kalaran is removed once the warp, or balo tanun, and cloth, or api, beams are inserted into either end of the warp. The coil rod, limuluan, keeps the cross; it is inserted in place (see procedure below) of the anak pangka, or the warping peg nearest the heddles (Figure 10b, 17).

The warp is suspended in the place where the loom will be set up. At this time, two thin rods take the place of the kalaran peg. These thin rods are to be the future heddle rods, or doke doke (Figure 17). This is a temporary set up for the doke doke. The loom set up proceeds as follows: the warp beam, or balo

Figure 17. The kalaran (part of the warping frame that holds the heddles and the cross) is removed once th warp and cloth beams are inserted at either end of the warp repectively. The coil rod is resting next to the cloth beam. Nene' Juni is inserting the pattern heddle rods into the space where the kalaran was originally. (Photograph by Maria Christou, 1993).

tanun is inserted into the end farthest from the heddles. The warp beam is fastened to another stable piece of bamboo, a palidaran, using two straps of buffalo hide, or ulung (Figure 7). The palidaran is in turn bound to two posts (Figure 7). The process of putting the warp beam onto the place where the weaving will proceed, is called dai tandiyan.

At the opposite end of the warp, the cloth, or api, is inserted along- side the coil rod in the warp tube; and the warp is arranged along both these components (Figure 18). It is the end closest to the weaver. The Sa'dan loom has a cloth beam that is made of two pieces and acts like a vice (Figure 9). It has the warp wrapped around it. As stated above, one piece is inserted through the warp; and the other piece is put on top of this piece and the warp, then the warp is folded over, and over with pieces of cloth beam inside it (Figure 9).

Next, the weaver positions herself in front of the warp, and grips onto the cloth beam, pulling the warp taut (Figure 18). The coil rod rests between the cloth beam and the heddle device. She pushes the cross closer and closer towards the coil rod, moving the heddles apart along the two heddle rods (Figure 19). Then she pulls the coil rod up towards herself in such a motion that the cross is now tightly bound around the coil rod (Figure 20). Once the cross is secured onto the coil rod and the warps are aligned evenly along the rod, she grips the cloth beam, which had fallen into the warp beside the heddles, and pulls it towards herself (Figure 20). This motion causes the coil rod to be moved up because the warp is circular; and so it goes around the warp beam and cloth beam (the cloth beam is not secured at this time).

The warp is moved around so that the heddle system is now on top and in front of the weaver (Figure 20). The temporary heddle rods are held with one hand while the other hand holds the cloth beam (Figure 20). The warp is shaken and flicked into place with each movement. The cloth beam is secured onto the warp; one piece is in the warp, while the other piece lies on top of the warp. Then the two pieces are fitted together, clamping the warp between them

Figure 18. Nene' Juni sits in front of the loom with the cloth beam and coil rod resting in her lap. At the opposite end of the warp is the warp beam. It is tied onto another beam and secured. The angle of the warp is 45 degrees. The warp is being evenly distributed along the pattern heddles. Note that the heddles are on to the bottom of the warp. This is a temporary position. (Photograph by Maria Christou, 1993).

Figure 19. Nene' Juni is using her fingers to comb the warp's cross onto the coil rod. The heddles and the heddle rods are still upside down; and the cloth beam has fallen against them. (Photograph by Maria Christou, 1993).

Figure 20. Once the coil rod is secured into the cross, Nene' Juni holds onto the cloth beam with one hand and the heddle rods with the other hand. The warp is then moved around the warp and cloth beam in one swift motion. This action brings the coil rod and the heddles on top of the warp. (Phtotograph by Maria Christou, 1993).

Figure 21. The cloth beams are put together and rolled over twice to make the warp shorter. At this time Nene' Juni puts her backstrap on, and then rests here feet on the blocks of wood directly in front of her. (Photograph by Maria Christou, 1993).

(Figure 9, 21).

It is at this point that the backstrap, pembokoran, or talikuran, is put on and secured to the cloth beam by two straps, ulung, that loop around the backstrap ends and the cloth beam. The blocks of wood, or tompoan, are set up according to the space available for weaving. The blocks are used as a foot brace to push against, in order to keep the warp taut (Figure 8).

Once the weaver is in the loom the warp is shaken again and the heddle rod is pulled up and the shed roll, or kaberan, is inserted into the shed of the warp. It is inserted between the coil rod and the heddle device by lifting the heddle rod. The sword, or balida, is added to the alternate shed where the shed roll is found. A flat bamboo rod, called a panata, is inserted in the shed and kept flat against the cloth beam. At this time one of the two temporary heddle rods is removed. The extra heddle rod was used to support the weight of the warp during the loom set up.

Now the warp is vigorously shaken, whilst holding the coil rod and hitting the warps behind it. This is done to reinforce the order of the warps along the coil rod, and to even out the order of the warps. The sheds are cleared with each lifting of the heddle rod, called tinti (Figure 22), and shifting of the shed roll, called kabe (Figure 23). As explained earlier, alternating the odd and even warps creates the counter and natural sheds; but, before laying a weft yarn into the warp, a series of flat bamboo slats, called panata are inserted (Figure 22, 23). They are temporary rods; with each weaving in of the panata, the warp becomes smoother and more even. The panata anchor the warp. It is easier to locate problem warps with the panata because the warps are more easily observed against the wide slats. They are removed after the plain weave begins with the weft yarn.

The weaver inserts the panata close to the cloth beam in order to get all the problems out of the warp using the coil rod as a guide to locate the even and odd warps. After two panata are inserted as weft, weft yarns are added in with

Figure 22. The shed is also cleaned when the counter shed is made. The counter shed is made by pulling up on the heddle rod, thereby lifting all the odd warps. This gesture is called tinti. The sword is inserted into the shed. Once in the warp, the sword is lifted onto its edge so it can create a shed for the weft to go through. (Photograph by Maria Christou, 1993).

Figure 23. The sword holds the shed open for the weft yarns to be inserted. For the first few throws through the warp, the weaver weaves with the panata, or cross sticks, as well as the weft thread. This is done to clean up any warps that may have been warped wrong. The shed must be clear of crossing warps (process called cleaning the shed) before a weft yarn goes through; otherwise there will be long weft floats appearing across the warp. (Photograph by Maria Christou, 1993).

each panata, until all the problems are repaired. Thus, two elements are being used as weft. It is at this time that all broken warps are repaired. Warps with irregular lengths, or doubled warps, are located, and moved over the warp beam. These warps remain there until the warp is woven into a textile.

The weaver repairs the problems in the warp, and solves the problems in the cross; she also adjusts warps that have become tangled and twisted around each other. The warps with irregularities and mistakes are called lao. Once this is done, weft thread is used instead of the panata. A panata is inserted into the warp after every inch of plain weave woven with weft yarn. To weave plain weave in this way is called sangka tanden. Once the warp is clear of any problems, they are removed.

Learning the motions of weaving on a backstrap loom

The weaver controls the warp with her body. The loom is attached to the weaver's body with a backstrap, hence the name of this loom, viz. backstrap and/or body-tension loom. The backstrap goes around the small of the back.

The alternate shed is created by moving the body forward, sorong, and then pushing back to create the natural shed is called, di kondok. The tension must be even otherwise the tension will not be even in the warp, and this will cause some of the warps to stick together, or not rise at the same time. Floats will then appear where the motif or pattern do not call for them. The motions of the weaver's body are crucial to the final outcome of the weaving. An inexperienced weaver must constantly be aware of the warp, and make sure of warps are not sticking together. Beginner weavers usually do not care about mistakes; they continue to weave and develop facility and rhythm.

Sangka is the name for the temple. It is a piece of bamboo wood, carved into a flat stick with either end sharpened to a point. These points are then inserted into the selvedges of the cloth to keep them parallel. If the weaver is tense and weaving erratically, the weft will be pulled too tight across the warps. Once it is beaten and the shed is changed, the selvedges will appear drawn

inwards. Doing this at irregular intervals is a sign of a poorly skilled weaver, or a beginner. A fine textile is one with even and parallel selvedges and no extra floats.

The elder, and thus, more knowledgeable and skilled weavers offer advice and special tips regarding both weaving movements and picks of weave to younger, and less experienced weavers. The advice is interspersed in their conversation throughout the course of the day whenever they notice something is incorrect. They point out incorrect movements or actions; and then demonstrate the correct process of weaving themselves. Comments concern how the sword is held. The sword must be held in the centre with the four fingers and the thumb on opposite sides of each other. It must be balanced gracefully, and this is difficult due to the fact that it is made of a heavy, hard wood.

Advice is also offered on how to position the body in the loom: the back has to be erect, shoulders squared, neck straight, face down, and legs firmly pushing against the wooden blocks in front of the weaver. The weaver's thighs and calves have to be straight out as she leans back to kabe; or gently and in rhythm, as they move forward to tinti, their knees must rise to relax the tension on the warp. As stated above, the body movements must be fluid, not jerky, otherwise this will cause the selvedges of the warp to pull in, or the warp and weft will not make regular and even interlacements; the picks per inch must be consistent.

The technique of weaving supplementary weft begins with the correct positioning of the bobbin, with or without bobbin holder, and the weft yarn. Thus, the bobbin must be held in a manner that releases the weft evenly while it is inserted into the web of the warp. The tension must be evenly regulated throughout the entire weaving. The Sa'dan weavers begin weaving on the right side and finish on the same side. The discontinuous supplementary weft patterned motifs must all be started on the right side and finished on the right

side.

Winding weft elements onto bobbins

The weft bobbins are simple fine and slender pieces of bamboo. The process of winding yarn onto a bobbin is called ma'karidi in Toraja, and menggulung, in Indonesia. The swift is called the alat pangurean (Figure 15). A bobbin without weft yarn wrapped around it is called pakandirisan, a bobbin with the weft yarn is called pakan. The bobbin is used alone or placed in a bobbin holder, called a torak.

Karidik is also the process of twisting the warp ends into a fringe after the warp is cut off the loom, and is a textile. It is used as a finishing technique.

Winding thread onto a bobbin is a difficult procedure for the inexperienced weaver. A definite rhythm is crucial in order to maintain an even distribution of the thread along the bobbin. If this is not done correctly, every time the bobbin is thrown through the shed the weft will not fall off the bobbin loosely and evenly, and instead snag at irregular intervals. This is significant because if the bobbin does not release the weft evenly and pulls in at the selvedge then the selvedges will not be parallel.

Winding thread onto a bobbin is done in a social setting because the process takes a long time. Winding bobbins is relatively simple once it is mastered; thus, little concentration is necessary during the process. This leaves the weaver free to converse and socialize. Several weavers, or weavers who once wove, will wind bobbins together.

Supplementary weft patterning technique

For the purpose of further comparative research I use a description for supplementary weft that is classified by Irene Emery (1980, p. 140) as a compound weave: that is, a simple ground weave with additional supplementary weft as decorative element in the textile. In Sa'dan Toraja both continuous and discontinuous supplementary weft techniques are used. Both supplementary weft techniques are called pa'ruki.

The Sa'dan Toraja discontinuous supplementary weft techniques do not correspond to the usual definition found in the Indonesian textile literature, i.e. "non-structural elements added to create a pattern or enrich a ground weave" (Bolland, 1980, p. 138, in Niessen, 1993, p. 5). The discontinuous supplementary weft motifs are wrapped around a group of warps before being laid in the warp; therefore, they become part of the ground structure, as well as the decoration. This is due to the fact that the supplementary weft technique of Sa'dan Toraja is based on twill weave structures.

Nonetheless, supplementary weft is a decorative technique, that lays supplementary weft floats over the plain woven surface for the purpose of creating either motifs or patterns. When motifs are laid in by hand the process is called discontinuous supplementary weft technique (Figure 24). If a pattern is laid in from selvedge to selvedge it is called continuous supplementary weft technique (Figure 25). Where motifs are continuous and contiguous, and become a pattern, they are done with continuous supplementary weft. Where motifs are discrete they are done with discontinuous supplementary weft. The insertion of the pattern heddle rods with continuous spiral heddles creates the effect of the continuous and discontinuous supplementary weft patterning. The number of pattern heddles affects the technique, in that it either increases or limits the number of motifs and patterns possible. The pattern heddle rods are called doke doke.

The large sword, balida is used to beat the plain weave in between the decorative wefts, as well as enlarging the shed (when it is flipped up on its side). The Sa'dan weavers also use another sword for weaving supplementary weft techniques, referred to as balida kecil, small sword. The small sword is used exclusively for the pattern sheds.

Inserting the pattern heddle rods into the loom

The heddles used to make patterns are different from the heddles used to make the ground weave. The supplementary weft pattern heddles have a spiral

Figure 24. The patterns that run across the entire textile are woven with the continuous supplementary weft technique. The motifs, the water buffalo, houses, and swords, are woven using the discontinuous supplementary technique. (Photograph by Maria Christou, 1993).

Figure 25. The large supplementary weft area is the pa'sekong motif. It is woven using discontinuous and continuous weft techniques. (Photograph by Maria Christou, 1993).

formation (Figure 16a, 16b). This is due to how they are made. They are added after the warping is completed and the loom is set up, unlike the main heddles that are inserted during the warping process. The supplementary weft heddles and accompanying rods may be added at any time during the weaving process.

In order to insert the pattern heddle cord into the warp the weaver inserts the pattern rods, or doke doke, through the whole warp. The weaver inserts the first pattern heddle rod in one of the natural sheds; and then she inserts the second pattern heddle rod in the counter shed (Figure 26, 27). She then begins to count and pick warps out for her intended pattern. The weaver uses the coil rod as the point of origin for the warps to slip onto the pattern heddle rod (Figure 26). She selects two sets of two warps from the top of the coil rod and two sets of warps from the bottom of the coil rod for the first two pattern heddles, and then groups of four warps, ie. 8, 12, and 16, for the remaining two pattern heddles.

During the warping process two yarns were used per turn around the warping frame. Hence, there will be four warp ends per pattern heddle. The single 2/2 ply yarns were doubled during the warping process; and because the weaver held two pairs of yarns in each hand, there are four warps per heddle for the main heddle. For the supplementary weft patterning process the weaver selects an even and an odd set of warps from the natural and counter sheds.

The weaver uses the coil rod as a counting guide to insert the pattern heddle rods. The number of warps in the heddle cord will determine the location of the patterns and the motifs. She uses the small sword to enlarge the sheds into which the pattern heddle rods will be inserted. While the weaver's body is keeping the tension of the loom taut, a heddle cord is wound around the pattern heddle rod that is being inserted in the warp. She catches up all the warp ends being raised by the small sword. The shed is then changed; and the same process is repeated with the other pattern rod.

Figure 26. Inserting the pattern heddles using the coil rod as a guide to count out the warp ends. (Photograph by Maria Christou, 1993).

Figure 27. The pattern heddles are being inserted into the loom behind the shed roll. (Photograph by Maria Christou, 1993).

As stated above, the supplementary weft technique is done with an additional two to four pattern heddle rods. The Sa'dan Toraja To'Barana' supplementary weft techniques are different from the ones discussed in the Indonesian textile literature. These are the three factors that appear to be unique to this area: (1) the coil rod is used as a guide to insert the pattern heddle rods, as well as maintain the cross; (2) the weavers do not remove the shed roll once the four pattern heddle rods and accompanying heddles are inserted into the loom. Furthermore, the shed roll is used in combination with the main heddles and the pattern heddles, and the large and the small swords. (3) The patterns and motifs are twill weave structures.

Discontinuous supplementary weft technique

The laying in of the weft into the warp is different for the discontinuous supplementary weft technique and the continuous supplementary technique. For a continuous pattern across the warp all the pattern heddles are manipulated in the sequence required to create the intended design. The following is a description of the discontinuous supplementary weft being inserted by hand. This technique is not discussed in the Indonesian textile literature. The weft is wrapped around a group of warps then carried through the shed manually. It is laid in between plain weave wefts; and it is part of the textile structure:

1. Make a shed with all three rods and the shed roll, or kabe,
   -insert blue weft for plain weave foundation,
   -beat once (Figure 28).
2. Lift pattern heddle closest to the main heddle rod, or heddle rod (a),
   -insert small sword,
   -check and clear shed,
   -lift small sword on its side to enlarge shed,
   -insert large sword in the pattern shed while holding small sword and pattern rod (a),

Figure 28. The supplementary weft motifs float over a plain weave ground structure. It is the foundation of the textile. The kabe gesture is used in order to create the natural shed for the plain weave ground. This weaving gesture includes all the heddle rods and the shed roll. (Phtotograph by Maria Christou, 1993).

-beat once with large sword,

-push, or move up rods and small sword (Figure 29).

3. Insert supplementary discontinuous weft in counted-out areas:

-first put in weft edge of motif and wrap around the warps,

-pull weft through with fingers,

-there are now four wefts,

-start at right, and pull towards left, behind raised warps,

-lift large sword on its side,

-beat once (Figure 30).

4. Plain weave: to change the shed the weaver puts the large sword against woven cloth; then she lifts the heddle rod up, tinti.

-push remaining rods to the top, just in front of the shed roll.

To make the new shed:

-lift the main heddle rod.

To insert the weft for plain weave:

-withdraw the large sword, only once shed is changed, not before.

-insert large sword into the new shed,

-insert weft for plain weave,

-beat once (Figure 31).

5. Changing the shed again before weaving in the supplementary weft is a two part procedure:

i. To the alternate pattern shed use the small sword and the main heddle rod.

-hold up the same pattern heddle rod, in order to complete the weft pass,

-remove sword,

-insert small sword in the new shed,

-push all rods up towards the shed roll, high up against the coil rod,

-while doing this turn, use sword to enlarge shed for the weft to go

Figure 29. The shed is ready for the discontinuous motifs to be inserted at any point along the warp the weaver decides. In order to create the the shed for the supplementary weft motifs the tinti weaving gesture was used. Just before this, the kabe weaving gesture prepared the shed for a weft shot of plain weave. (Photograph by Maria Christou, 1993).

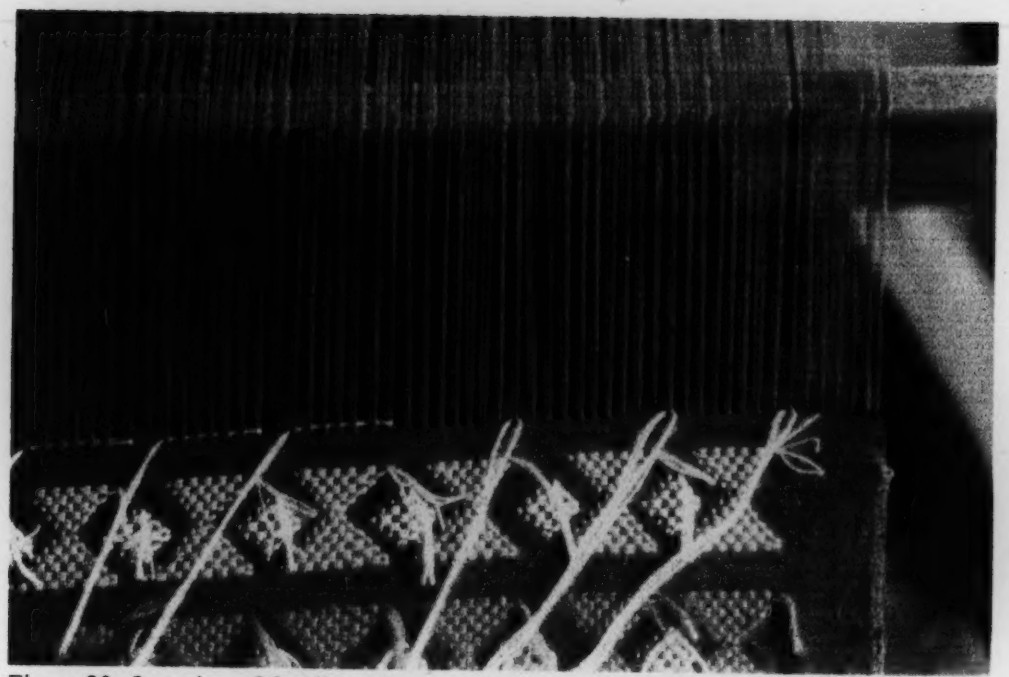


Figure 30. Insertion of the discontinuous supplementary weft. (Phtograph by Maria Christou, 1993).

Figure 31. After the discontinuous weft motifs were laid in (by hand), the shed is changed again for the plain weave ground. The tinti weaving gesture changes the shed at this time. (Maria Christou, 1993).

through (Figure 32).

ii. Insertion of the pattern weft:

-return pattern weft pass with hand to complete one row,

-hold warps with left index finger,

-insert weft with right index finger,

-start from right and pull through behind warps towards right again,

-the pattern weft will not come out once shed is changed, but it is difficult to note this. Thus, mistakes may occur in the patterning at this time (Figure 33).

-beat in the discontinuous supplementary weft thread.

One sequence of pattern weft is complete (Figure 34).

6. Change the shed again by making the kabe gesture using the shed roll, kabe.

-beat,

-kabe,

-remove sword.

7. Insert the main weft:

-insert the large sword into main shed,

-enlarge shed and keep shed open with large sword,

-insert weft from left through to right,

-beat once.

One sequence is now complete.

8. Change the shed again, tinti, and use pattern heddle rod nearest the shed roll, or pattern heddle rod (B):

-insert the small sword,

-insert another discontinuous supplementary weft thread,

-beat once with the large sword.

One sequence is now complete.

9. Change the shed again, kabe, and use the shed roll:

Figure 32. The shed is changed again after the plain weave weft was shot through. The kabe weaving gesture is used again, except this time the weaver uses only one of the pattern heddle rods and shed roll. The shed is kept open with a smaller sword, while the large sword beats in the supplementary weft motifs. The shed is now ready for the second row of discontinuous supplementary weft motifs. (Photograph by Maria Christou, 1993).

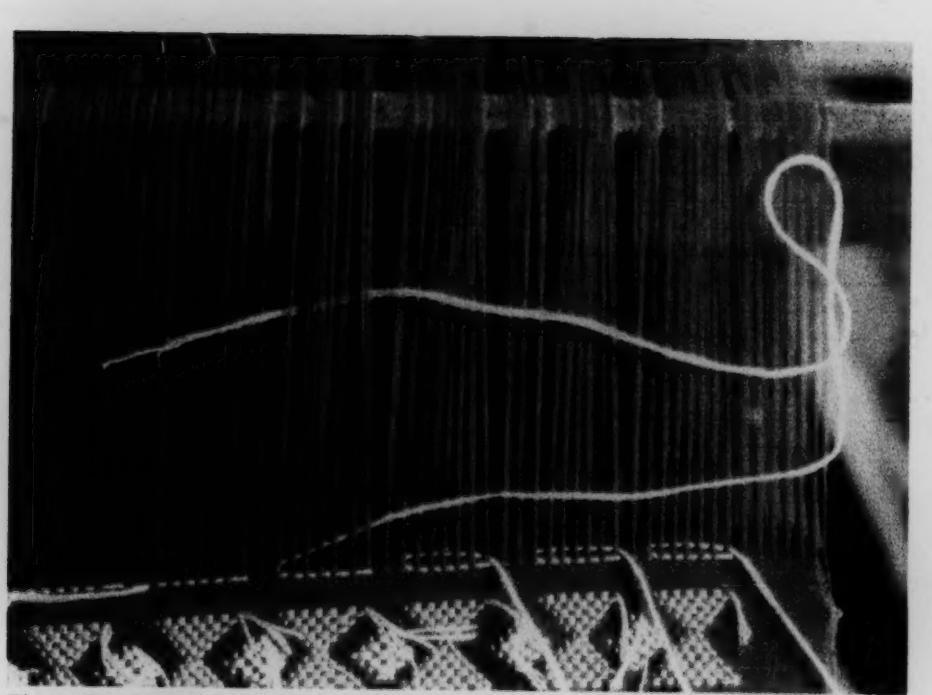


Figure 33. Insertion of the second row of discontinuous weft motifs. (Photograph by Maria Christou, 1993).

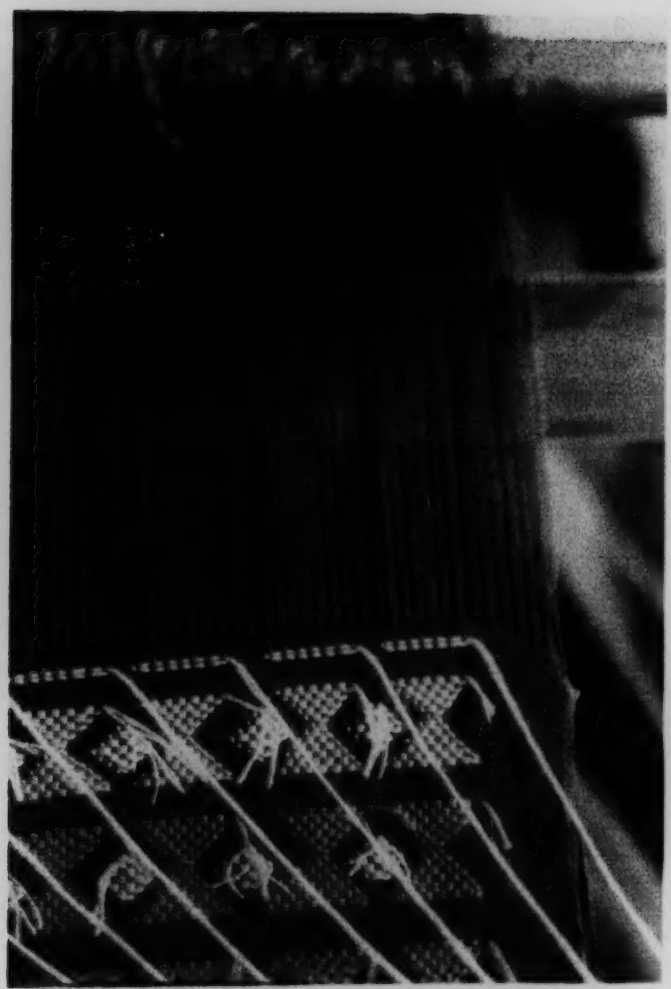


Figure 34. A second row of discontinuous supplementary weft has been inserted into the warp. The weaver beats it in with one heavy slam of the sword. (Photograph by Maria Christou, 1993).

-hold the shed roll, the small sword, the main heddle rod, and pattern heddle (A) for this sequence;

-insert the main weft,

-beat once.

10. Change the shed again using the main heddle rod, and tinti.

Final sequence is completed for insertion of the discontinuous supplementary weft motif.

In order to weave all the discontinuous supplementary weft motifs and patterns, only two pattern rods are necessary. With these two rods and the main heddle rod, a variety of designs are possible using three sheds. This is a twill weave. In order to weave a twill, a loom needs a minimum of three heddle rods, which produces three sheds.

To weave a variety of continuous supplementary weft patterns four pattern heddle rods are necessary, as well as the main heddle rod. The number of weaving sequences required to weave certain patterns with the supplementary weft technique, out-numbers the sequences that can be achieved with only three heddle rods.

The two extra pattern heddle rods are kept behind the shed roll until they are necessary. Their manner of use is identical to that of the usual two pattern heddle rod technique described above. They would expand the number of sequences possible. Thus, the steps are greater in number in the supplementary weft weaving process. Supplementary weft is part of the structure of the textile because it is wrapped around the warps before being laid across the design area.

Increasing shed space in the warp

1. When most of the warp is woven and more warp space is needed for weaving, the weaver undoes the backstrap from the cloth beam; and separates the two parts of the cloth beam. The warp is now free to move around the warp beam and cloth beam; it is circular. It is preferable to have a large shed area, so

that the sword can open the warp easier in order to lay the weft through the warp. The more surface area with warp, the larger the shed will be. The weaver, therefore, shifts the warp down and around the warp beam, pulling the entire warp towards her. The un-woven warp comes closer to her body and the finished cloth gets moved away from her. Eventually the underside of the cloth shows up more and more. The shed becomes very small, and as a result a sword cannot enlarge the shed for the weft to go through the warp. Without any adjustments the weaving would have to end at this point.

There is a that increases the shed space in the warp when the textile is almost completely woven. Backstrap looms with circular warps eventually can end in a completely round cloth. Sa'dan textiles are not completed this way unless they are for religious use. Maxwell states that "the ultimate form of the circular continuous woven textile is represented by one particular type of sacred ma'a made in such an exacting fashion that the entire warp is filled with wefts to form a completely tubular fabric without any seam" (1990, p. 146). Other Sa'dan Toraja textiles woven in a complete tube are the Toraja dodo, or sarong. Two tube textiles are sewn together to make a large dodo for an elder of high status.

The first phase of weaving a seamless round textile is replacing a large coil rod with a smaller coil rod: (a) The weaver accomplishes this by moving her body forward with jerking motions in order to loosen the warp around the coil rod. At the same time, she is holding all the loom components in place using her torso; (b) The coil rod is held at both ends until there is space between the warp ends, the cross, and the coil rod. This happens when the warp is jerked and flicked by the weaver with the sorong gesture. The gap between the cross and the coil rod is then large enough to insert another smaller coil rod (Figure 35a, 35b, 35c). The smaller coil rod is added from the left at the same time as the larger coil rod is removed from the left; (c) After this procedure the weaver adjusts the warp. Once again she moves her body forward and jerks the warp

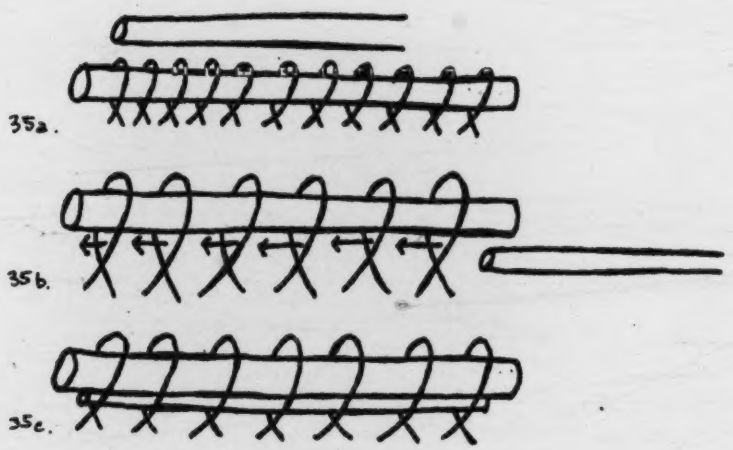


Figure 35a. The weaver intends to insert another coil rod in the cross with a smaller diametre, 1" in diametre. This will increase the warp length by two inches. In order to weave a circular textile the weaver needs more space for the shuttle to go through the shed. When the weaving comes near to covering the entire circular warp, the shed becomes smaller and smaller because only a little of the unwoven warp is left. By increasing the warp length it increases the space available for weaving.
Figure 35b. The weaver has shaken the warp so that the cross around the coil rod becomes loose enough for the smaller coil rod to run through it. The small coil rod is inserted from the weaver's right side.
Figure 35c. Once the two coil rods are in the cross the larger coil rod is removed from the weaver's left.

with the coil rod with both hands at each end of the rod.

2. As stated above, it becomes difficult to open the shed wide enough for the weft thread to be passed through the warp. To move the shed roll, kaberan, forward and back, or kabe, is more difficult than to lift the main heddle rod, tingke kala', or tinti. The warp is taut when the shed roll is moved, whereas the warp is loose when the tinti gesture is done. Thus, to move the shed roll is more difficult than to pull up on the main heddle rod.

To increase the warp area for more weaving, after the supplementary weft patterning decoration is completed:

a. The shed roll can be removed to increase the size of the shed:

-insert the small sword with the shed roll,

-remove the shed roll,

-kabe using the small sword, or make weaving a sequence of plain weave using the small sword as if it is the main sword,

-insert the large sword in the shed created by the small sword,

-remove the small sword,

-turn the large sword on its side,

-put the shed roll back into the shed,

-remove the sword,

-the two pattern heddles are now on the other side of the shed roll closest to the coil rod.

Also, a bobbin with a small amount of weft yarn is inserted, instead of the larger bobbin holder with a bobbin in it. Another factor that limits the shed size is the length of the heddles. If the heddles are too short the warp will be held too close to the heddle rod. Hence, the shed will be too small for the bobbin to go through; and to make the kabe gesture with the shed roll. It is best to warp ma' tombe' kala: to add long heddles during the warping process.

During the second procedure for making a completely woven seamless cloth the coil rod is removed, and so are the pattern heddle rods (optional), so

that only the main heddle rod and shed roll remain in the warp. The weaving continues until there are only twenty inches of unwoven cloth. A smaller shed roll is inserted to further increase the shed size for weft insertion. Eventually with only ten or fewer inches of unwoven warp left, the shed roll is removed so that only the main heddles are left to create the odd shed. Then using a small needle without an eye, but more like a miniature crochet needle, the weft thread is inserted into the alternate sheds of the warp. The natural shed must be manually picked out by the weaver, whereas the counter shed is created by main heddle rod. This is a time consuming procedure.

The above procedures were done on the textile featured throughout this thesis. These procedures have not been described in the present Indonesian textile literature. It is my own textile (I did not warp it or set up the loom for this textile because I was documenting all the procedures involved). When I requested to learn how to make a seamless woven textile, my weaving teacher hestitated to show me. She indicated it is rarely done anymore, and such textiles are used only by high status individuals. However, she did instruct me how it was done. Once I completed this textile she cut it across its width, indicating that only special textiles were made this way by high status weavers. Thus, it would be taboo and inappropriate to leave my textile in a tube with an uncut warp.

Chapter Six
Discussion

Introduction

This chapter discusses the Sa'dan Toraja loom as a variant of the body-tension loom with a continuous warp (Figure 36a). I compare the Sa'dan loom to the other looms found on the island of Sulawesi (Figures 36a, 36b, 36c, 36d). This is done in order to situate the Sa'dan loom in an historical time frame. I suggest that loom type correlates with the materials and decorative techniques, and to a certain, but lesser extent, with design. This assemblage of material data offers insight into the cultural history of Sulawesi.

This study supports what Maxwell (1990) has shown; viz. that foreign cultural influences have been layered onto the indigenous material culture. They have entered via trade and marriage alliances. In the loom technology and the weaving[9] of Sa'dan Toraja, one can see the historical layers of influence. There are four layers of influence on Sa'dan Toraja loom and weaving technology: (1) The Sa'dan Toraja indigenous culture, c. 4000-8000 years ago, is based on a traditonal religion known as the Aluk To'dolo. The supplementary weft techniques they use to make designs are based on stylized representations of human figures. Motifs also depict flora and fauna from the nature that surrounds Sa'dan Toraja. (2) The Dong-son art style of northern Vietnam, c. 2000-4000 years ago, is featured on the Sa'dan Toraja textiles in the form of rhomboid, hook and key motifs and patterns in supplementary weft based on twill weave. (3) The Hindu-Buddhist cultural influence, beginning sometime in the 5th century A. D., is visible in the adaptation of silk yarns and supplementary weft weaving and weft ikat. The final historical influence was the coming of Islam in the 1400's. At this time the lowland weavers began using

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[9] Linguistic and archaeological evidence suggest that weaving first started in Sulawesi between 8,000-4,000 years ago (Bellwood, 1979, Blust, 1984, Soejono, 1988, Sorensen, 1988, and von Heine-Geldern, 1937).

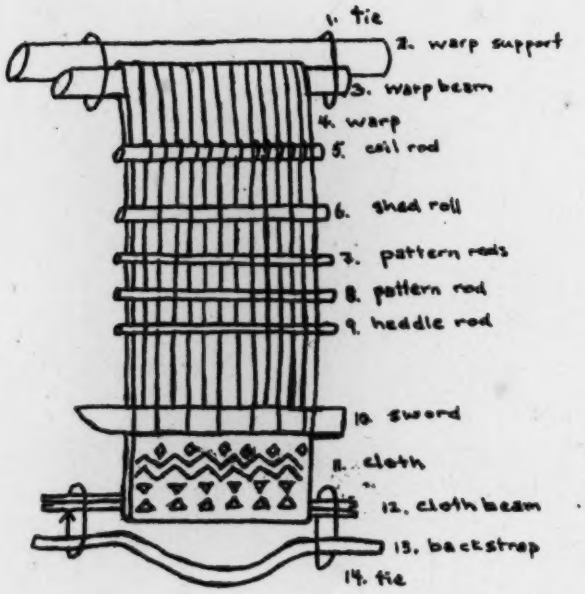

Figure 36a. Loom type A, Sa'dan Toraja loom. This loom has a continuous warp; and a coil rod which maintains the cross in the warp. Two to four pattern rods are added to the loom for weaving the supplementary weft. Plain weave and supplementary weft textiles are woven on this loom using cotton.

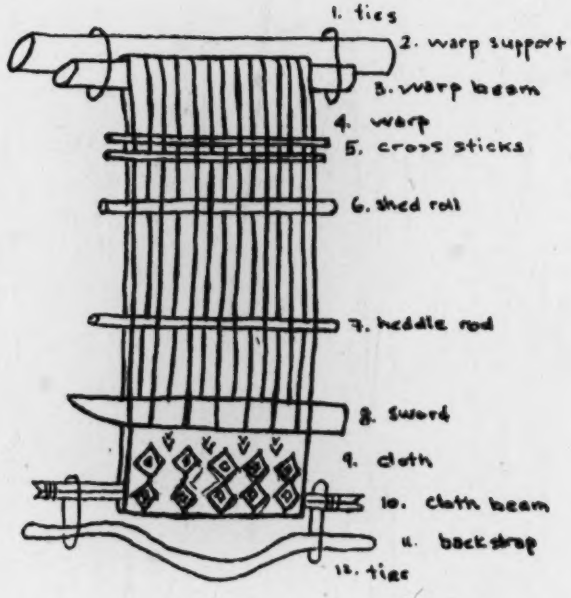

Figure 36b. Loom type B, To'Rongkong Toraja loom. This loom has a continuous warp; and cross sticks which maintain the cross in the warp. Warp ikat is woven on this loom using cotton. There are no pattern heddles on this loom.

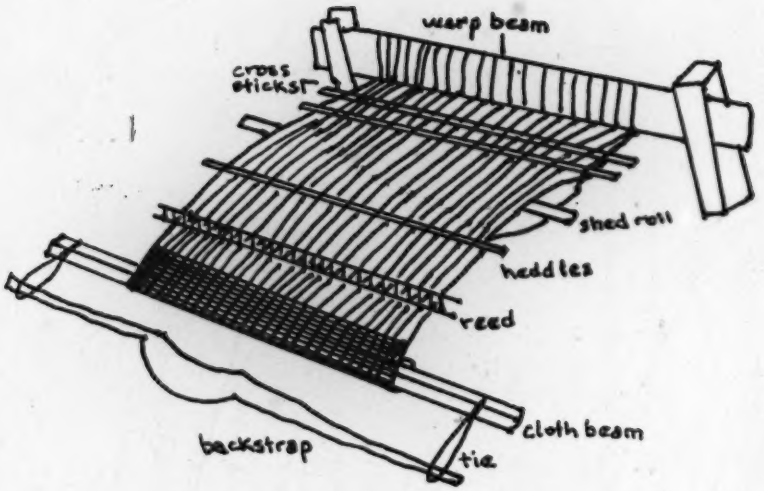

Figure 36c. Loom type C, Bugis coastal loom. This loom has a discontinuous warp; and cross sticks, which maintain the cross in the warp. It has a reed and and a sword. The re d acts as a warp spacer, while the sword acts as a weft beater. Supplementary weft techniques and weft ikat are woven in silk on this loom. (Gittinger, 1979, p. 231).

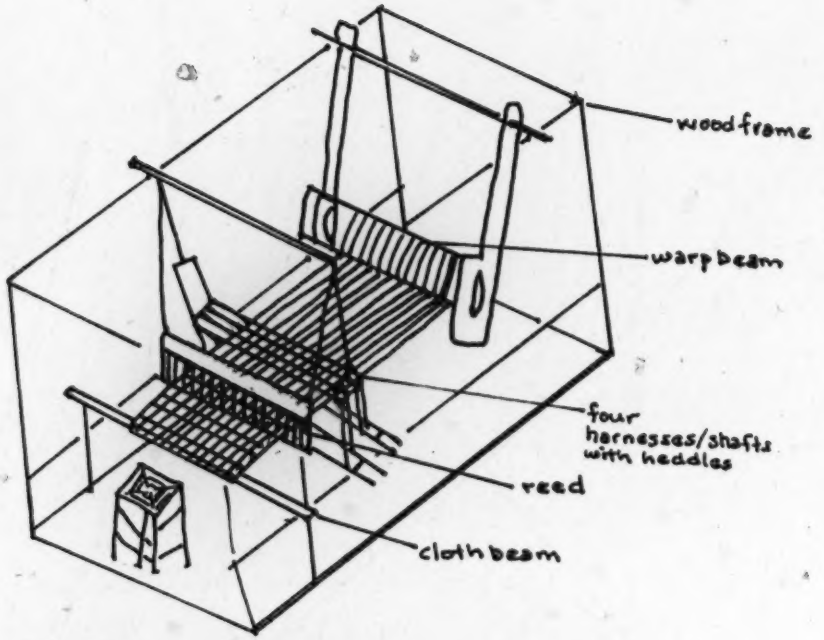

Figure 36d. Loom type D, Bugis interior lowland Malay shaft loom. This loom has a discontinuous warp; and cross sticks, which maintain the cross in the warp. It has a reed that acts as a beater and a warp spacer. There is no sword. The shed is made by manipulation of foot treadles. Weft ikats and checked textiles are woven in silk on this loom. (Hitchcock, 1991, p. 68).

more sober colours, and their designs did not include human and animal figures. (4) The final historical influence was the coming of Islam in the 1400's. At this time the lowland weavers began using more sober colours, and their designs did not include human and animal figures.

My field research on Sulawesi has helped me to recognize each of these layers and understand their significance in relation to loom structure, decorative techniques, design, and materials. History is inscribed in loom technology, weaving techniques, materials, and design.

Sulawesi looms

On the island of Sulawesi there are four types of looms: the Sa'dan loom (type A) (Figure 36a), the To'Rongkong, To'Makki, and To'Mamasa looms (type B) (Figure 36b), the coastal Bugis loom (type C) (Figure 36c), and the interior lowland Bugis loom (type D) (Figure 36d).

The Sa'dan Toraja loom is a simple backstrap loom used for plain weave textiles. However, it is altered when the weaver wants to weave continuous and discontinuous supplementary weft designs by the addition of two to four pattern heddles. Furthermore, I found that the use of the coil rod is significant for weaving the supplementary weft technique. It is used as a guide to insert the pattern heddle rods that make the supplementary weft designs. On Sulawesi, this loom component is only found on the Sa'dan Toraja loom (type A).

The To'Rongkong, To'Makki, and To'Mamasa loom type B is also a simple backstrap loom, but supplementary weft weaving designs are not made on this loom. Instead, warp ikat is used as the decorative technique. Loom types A and B are identical, except that loom type A has a coil rod to maintain the cross in the warp, whereas loom type B has cross sticks to maintain the cross in the warp (Figures 36a, 36b). The designs are the same, but the decorative techniques are different.

The lowland interior and the coastal Bugis looms both have discontinuous warps and cross sticks. However, the looms are different structurally. For

example, the loom type C in Towali (Map 5) is a backstrap loom with a reed and a sword (Figure 36c). The reed is used primarily as a warp spacer. This type of loom may have come to Sulawesi after the 5th century A. D. It was at this time that these looms came into use in Indonesia (Maxwell, 1990). Loom type D (Figure 36d) in the interior lowlands is a Malay shaft loom (Hitchcock, 1991, p. 68) with foot treadles, reed, and no sword. This loom was introduced at a much later date ca. 1800's.

It may be that the Sa'dan Toraja loom type A is an intermediate loom between loom type B and loom type C because it has pattern heddles used to make supplementary weft designs. These designs are usually done on backstrap looms with discontinuous warps (Figure 36c). Loom type B is perhaps an earlier invention because the use of warp ikat is said to be one of the first decorative weaving techniques used in Indonesia (Maxwell, 1990). However, loom types C and D also have cross sticks. The Sa'dan Toraja loom type A does not always have pattern heddles in the warp, but it always has the coil rod in the warp. Perhaps a loom with a coil rod suggests an earlier loom.

Decorative techniques

It is my hypothesis that the decorative technique corresponds to the loom type, and as such helps in the creation of a loom typology. It also helps locate the loom type in an historical time frame because we know that the supplementary weft technique came into Indonesia around the 5th century A. D. during the Hindu-Buddhist influence (Maxwell, 1990). A weaving technique correlate with a loom type because the loom has to have certain components in order to weave a particular technique. For example, the Sa'dan Toraja loom (Figure 7) is set up for plain weave. However, when weaving supplementary weft techniques, two to four additional heddle rods are added to the loom. The Sa'dan Toraja loom is a simple backstrap loom, but in order to weave more complicated weave structures more components are added to the loom.

Given Maxwell's paradigm of historical layers of influence via trade and

marriage alliances throughout the Southeast Asian archipelago, I suggest that Sulawesi looms are an excellent example of her hypothesis. For example, perhaps the Sa'dan Toraja loom type A is an indigenous invention like loom type B. However, the Sa'dan Toraja loom has additional components added to it in order to weave supplementary weft techniques. This would indicate that the loom was altered by adding pattern heddles at the time of the Hindu-Buddhist influence or shortly thereafter through marriage alliances and/or trade relations. As stated above, it was during the Hindu-Buddhist period that the supplementary weft technique is said to have been incorporated into Indonesian textile technology (Gittinger, 1979; Hitchcock, 1991; Maxwell, 1990).

It is possible to infer that through trade links and marriage alliances with court based cultures on the coastal regions of South Sulawesi the supplementary weft techniques were incorporated into an existing reportoire of weaving. The supplementary weft technique only appears in the highland region of the Sa'dan Valley in the four villages in the northern region of the valley. Today the high status families of To'Barana', Matallo, Sangkombong, and Sangkaropi have connections with Balusu'. The highest status family in To'Barana' has kinship connections with the puang, princess, in Balusu'. Historically, the high status families of Balusu' and the royal family in the Luwu' court had cross-cousin marriage alliances. This still occurs today, regardless of the difference in religious orientation.

The use of silk coincides with supplementary weft patterning and or supplementary weft ikat techniques. When silk is woven with supplementary weft patterns using gold and silver threads and weft ikat, it is known as songket. These textiles were made and used by royalty in the coastal Islamic royal courts of Indonesia. There are four royal courts in South and Central Sulawesi. The first royal court was in Luwu' called the Kingdom of Bone (Map 6). The Bone royal court had extensive trade relations with Toraja highland peoples (Aragon, 1996). Further south on Sulawesi, the Islamic Sultanate of Goa was also a

powerful royal court having connections with the Sa'dan Toraja. According to Maxwell (1990), in the 17th century this court ruled over the courts of Sumbawa. It is possible to speculate that it was at this time that the use of silk, supplementary weft patterning and weft ikat techniques reached the coastal and interior lowlands of South Sulawesi via these Islamic trade routes and political alliances. Afterall, it was the royal women who wove songket textiles in the court palaces. It is common knowledge that they brought their talents with them wherever they went, and likely their looms as well. It is my argument that the Sa'dan Toraja maintained their looms and materials, but incorporated supplementary weft weaving techniques, via trade and marriage alliances with the lowland court cultures in the Luwu' and Goa regions of South Sulawesi.

Supplementary weft technique/twill weave

The Indonesian textile literature does not make reference to Sa'dan Toraja weaving. Based on my observations and participation in setting up and weaving on a Sa'dan Toraja loom, I found that the discontinuous supplementary weft technique is based on twill weave.[10] However, the ground weave is not a twill weave.

In the Sa'dan Toraja supplementary weft technique there is a maximum of five intervals that can be woven in sequence to create a pattern or a motif because there is a maximum of five sets of heddles. The number of sheds that can be made is determined by the number of pattern heddles that are inserted in the warp. For the most basic twill, three heddle rods are necessary, which make three different sheds for the weft to go through. The Sa'dan Toraja supplementary weft patterns and motifs are based on a three to five point twill weave. The weft can go over as many warps as are held by each one of the pattern heddles.

The twill weave designs are made by men from all the ethnic groups throughout Central and South Sulawesi when plaiting palm fronds for houses. The same designs are carved and painted on wood, and also twined in beadwork.

Four other factors affect the design of supplementary weft patterning apart from it being a three to five point twill weave variation. These include: (1) the thickness of the actual weft; (2) the manner in which it is interlaced through the warps, i.e. whether it is a continuous weft through the warp, or a discontinuous weft that is interlaced through the warp manually. Both variations of the same technique are distinct. The discontinuous weft patterning is wrapped around a warp and then pulled through manually at any place the weaver chooses, whereas the continuous weft patterning is shot through the entire warp in measured intervals. The patterns are limited by the loom components. (3) The heddles hold warp ends that are in groups of 2, 4, 8, 12, 16; (4) The final design element is colour. Colour is chosen both for aesthetic and symbolic purposes when used in supplementary weft weaving. The colours used in weaving would depend on the agricultural cycle, and thus on the ritual cycle decided by adat. Unlike the Islamic influenced lowland regions of Sulawesi, the Sa'dan Toraja use bright colours, and weave animal and human motifs.

The Sa'dan Toraja weaving technology has several distinguishing features: (1) Both continuous and discontinuous supplementary weft weaving are executed using five heddle rods; discontinuous supplementary weft is also threaded through the warp using the fingers; (2) The four pattern heddle rods are not removed at any time, instead they are incorporated into the weaving process; (3) The coil rod is used to insert the pattern heddle rods, and maintain the cross in the warp; (4) The shed roll is kept in the warp throughout the entire weaving process; (5) The cloth beam is made of two pieces, so the warp may be several metres long (depending on the decorative technique to be used, it varies between two and ten metres in length). Based on my literature review and data, when all these features exist on one loom this would indicate a loom technology that has not previously been recorded in the Indonesian textile literature.

Design

Indigenous features in Toraja design

Design also correlates with the loom type, and to the decorative technique. In Sa'dan Toraja the designs made in supplementary weft techniques require more than just a simple backstrap loom with a continuous warp. As stated above, additional heddles must be added to the warp in order to weave these patterns and motifs.

The supplementary weft designs found on the textiles woven in Sa'dan Toraja are based on an art style that is prevalent throughout the highland regions of Indonesia. These designs are discussed by Jager Gerlings (1952). Jager Gerlings' hypothesis (1952) is that the hook and key motifs are geometrical representations of the human body. He suggests that there is a correlation between these images and ancestor worship. I found that the Sa'dan Toraja use these motifs in their weavings, carvings and beadwork. The Sa'dan Toraja religion is based on nature and ancestor worship. Textiles, wood carvings, and beadwork are used in their life and death ceremonies honouring their ancestors. Jager Gerlings' hypothesis (Ibid, 1952) is significant because in the weaving of the Sa'dan Toraja, the sekong motifs are variations of the rhomboid, hook and key motifs. These are done in the supplementary weft patterning technique in To'Barana' (Figure 24, 25). Thus, the weavers use supplementary weft weaving (a relatively recent technique, ie. ca. 5th century A. D., or later, see above), in order to weave ancient symbols. Here we see that a new decorative technique is creating ancient patterns and motifs.

Dong-son art style

The Dong-son art style is from northern Vietnam (Von Heine-Geldern, 1937). It is a bronze culture said to have existed ca. 2,000 years ago (Ibid, 1937). Dong-son has dominated the aesthetic of the Toraja. It is found in all aspects of their material culture: beadwork, carving, painting, textile techniques, and appliqued barkcloth. The designs on the bronze drums from northern

Vietnam (one found on Selayar Island, see Map 2) feature incised twill patterns that appear very similar to the twill patterns found on the Sa'dan Toraja textiles. Here one may observe the pattern of influence of one culture's art style (and possibly decorative technique), layered on another culture's style. Thus, along with loom technology and decorative techniques, foreign design features have also been incorporated into the existing Sa'dan Toraja weaving.

Materials and decorative techniques: silk and cotton

There is a correlation between the loom type and the materials used for weaving. Cotton is used for weaving on backstrap looms with continuous warps. Cotton is used because it is easy to manipulate due to its natural fibre properties[11] when making a continuous warp. The thickness of the cotton yarn makes it practical for warping purposes because fewer warps are needed per inch. The finer the yarn the more warps are needed per inch. Hence, there are not more than 90 warps per inch in a Toraja textile. Cotton is used primarily in the highland regions of Sulawesi because it is not damaged by exposure to the extreme natural elements common to these regions. Its natural properties make it a practical cloth for the humidity and extremes in temperature of the highlands. It is comfortable in hot, humid climates because it wicks moisture away from the body. It is also durable enough for the Sa'dan Toraja lifestyle.

Silk is woven on backstrap looms with discontinuous warps. Silk is a fine yarn; therefore, a minimum of seven silk brins is necessary to make a single yarn. A single brin is made of two bave; two bave are made by the silk worm moving its head in a figure eight motion as it builds the cocoon around itself. As the bave are released a natural substance, sericin, glues the two bave together. Later, when a single brin is reeled from each cocoon it appears to be a single

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The natural properties of cotton make it a good fibre for warping circular warps because the fibre tenacity is moderately high. It is stronger when wet. It is not resilient and elastic, and this means it will make parallel warps because the yarns do not become stretched out. It is a comfortable to wear and versatile natural fibre.

filament. Because silk is reeled off in one continuous filament this gives it high tenacity, resulting in a very strong fibre. However, due to its absorbent properties, it is easily damaged once soiled. Many warps per inch are needed to warp in one continuous length. It would take hours of work. The tension is hard to maintain for the length of time it would take to warp a continuous silk warp. The molecular structure gives it too much stretch; and this is why the warp ends must be in a fixed position when weaving with silk. Silk is used on the coastal and interior lowland regions of Sulawesi. Some silk is grown on Sulawesi, but the silk that is used for weaving most textiles is imported from China.

The decorative techniques correlate with the type as well as with the materials. In the highland regions of Sulawesi the warp ikat technique is woven using cotton yarn on a backstrap loom with a continuous warp, while in the lowland interior and coastal regions of Sulawesi weft ikat is woven using silk yarn on a backstrap loom with a discontinuous warp. It is possible to do either of these ikat techniques on all loom types (A, B, C, D), but it would not be practical to do so because of the time involved in preparing the yarns and warping them. It is easier to weave a warp ikat on a backstrap loom with a continuous warp because of the thickness of the cotton yarn. Cotton is not used for weft ikat because the design would shift during the dyeing procedure due to the thickness of the yarn and its fibre properties. The weft ikat technique is woven using silk yarns because the yarns may be dyed and fixed without shifting the design. The dyeing procedures used to dye cotton and silk are different. The dyes used to dye cotton are from an alkaline dye bath, whereas the dyes used to dye silk are from an acidic dye bath. Thus, the dyeing procedures correlate with the warping procedures also.

Further comparative research will have to be conducted in other parts of Indonesia in order to determine whether the Sa'dan Toraja weaving technology and techniques are exceptional, or typical of Indonesian textile making.

Chapter Seven

Conclusion

From a critical analysis of the literature presented in this thesis and from my own observations in the field, my findings support Bird's (1960) theory that loom technology and weaving techniques inform us about cultural affiliation and contact, and socio-cultural relationships. This information provides useful ethno-historical information. It constitutes an ethnographic approach to cross-cultural textiles. More specifically, the thesis answers the call for more "comparative cross-cultural documentation of pattern heddles in Indonesia"in order to "correlate float weave technology and patterns to support valid insights into historical significance of twill weaving in Indonesia" (Niessen, 1993, p. 2). I also observed that the loom type correlates with the materials and decorative techniques; and to a certain, but lesser extent to design. This data helps create a loom typology.

My fieldwork took place on the island of Sulawesi where the coastal and the mountainous regions are occupied by several distinct ethnic groups with diverse languages, customs, beliefs, kinship and social organization. There is a diversity of material culture that varies to some degree by each people's geographical location and natural enviroment. Each people's relationship to their near environment is a force in the technological variations of weaving. This thesis describes the weaving techniques and loom technology of one of these ethnic groups, the Sa'dan Toraja (Map 5).

Learning to weave in To'Barana' enabled me to become familiar with the loom and the weaving techniques of the Sa'dan Toraja. Thus, the technical details of weaving were explored in situ. My knowledge of this topic is based on practical experience as a weaver and dyer, when applied to this study it greatly strengthens the reliability and validity of the data I have collected in the field.

The social and cultural setting of my weaving experience made it possible for me to engage in the everyday life of the To'Barana' weavers. Living with a

family provided a situation that encouraged communication through natural conversation, and at the same time sustained relationships.

My survey of different weaving locations on the island of Sulawesi enabled me to choose the region where I could participate in the weaving and thereby learn about the backstrap loom with a continuous warp, coil rod, and supplementary weft technique. While learning to weave in To'Barana' I learned about the significance of the coil rod, and its relationship to the warping system, and the supplementary weft technique. This is important technical information that has not been previously recorded in the Indonesian textile literature. Data in this study were collected according to what Junius Bird (1960) has advised for textile historical scholarship. Participation in the weaving process complimented my observations.

Weaving in Sa'dan Toraja I learned that the coil rod maintains the order of the warp by holding the cross in the warp. It is also used to locate problem warps during the setting up of the loom; and to count out the warps necessary for patterns during the insertion of the heddle rods and cords. Without knowledge of the warping process and of setting up a loom, it would be difficult to understand its use and its significance.

I learned that the loom type dictates the warping procedure. The warping methods are crucial to understanding technical details. For example, one technical detail I found was that the main heddles have an *alternate* formation and the pattern heddles have a *spiral* formation. I noticed this while I was learning to warp and putting in the main heddles, and later while watching my weaving teachers adding extra pattern heddles and rods. The alternate continuous heddles are a heddle design which can only be achieved during warping. This information has not previously been described in the Indonesian textile literature.

Weaving in the To'Barana' village, over the course of several months made it possible to witness the ritual cycle of the agricultural year, and its effect

on the weaving. I also witnessed ouside effects on the weaving and the weavers, such as tourism.

Tourism maintains the weaving traditions by providing the market. The textiles become commodities for this market. The meaning of the textile changes once it is in this different social and economic context. However, the weaving technology and the weaving process remains the same regardless of the change in meaning of weaving. If weaving is done for sacred purposes, or if it done for economic survival, the technology remains the same. What is lost, perhaps, is the sacred quality of weaving. The offertories and invocations may be lost or forgotten, but the act remains. The meanings may be lost, changed, or shifted, but the material object, the technology, and the process remains the same because it is still used. Weaving survives because it is done. If the tourist market were not present perhaps the weaving tradition would go into decline. I believe this may have been the case at one point. A pivotal moment was the 1992 funeral ceremony that brought exposure to the weaving village for its natural beauty and its weaving craft, and inspired its revival.

The high status women of To'Barana' are able to afford to educate their children in higher education facilities primarily in Ujung Pandang and Jakarta. Historically, noble women wove, and as society became modern, women changed their traditional role of remaining in the village. Instead they left to get educated, then returned, had families, and worked. Little time was left for learning the weaving process, not to mention the lack of interest. With the influx of tourism in To'Barana', supplementary weft weaving on backstrap looms with continuous circular warps has been revived, and thus, sustained. While, the social status of the weavers is not the same as it was in the past, more children have access to the loom because it is everywhere around them.

Despite the social changes that are occurring, the majority of the To'Barana' weavers know their medium and work within its limitations to fulfill their family's economic needs. The weavers work within the boundaries of <u>adat</u>.

Adat is connected to the seasonal, and thus the agricultural cycles, and so the weavers integrate the effect of modernization and tourism into their world view. The weavers perceive and participate in the world today, and then give their interpretation of it through the non-verbal medium of weaving. This happened in the past and it is happening today. At the same time, weaving appears to be a highly valued and respected activity. People value the loom because they value its textiles, and more importantly, as a group they respect and honour the skill and poise of a weaver. In memory of her they will sing about her knowledge and beauty at the loom. These points account at least in part for the persistence of weaving.

By doing field work I noted the way in which supplementary weft weaving is different compared to descriptions of other supplementary weft techniques in other areas of Indonesia. "To know how to look at a loom, one must know the basic principle of weaving on the loom type, and the best way to get this knowledge is to do it oneself because this way one may better learn the possibilities and limitations of the loom (Bolland, 1991, p. 183). My weaving skill allowed me special access to weaver knowledge. Loom technology and the supplementary weft technique, as presented in detail in chapter five, may be compared as a whole to see if there is a pattern in their distribution.

The Sa'dan Toraja loom type A (Figure 36a) may be an intermediate loom between loom types B and C (Figures 36b, 36c). It is a simple backstrap loom with a continuous warp, but complicated techniques may be woven on it due to the addition of particular components such as the coil rod and extra pattern heddles. All the loom parts remain in the warp throughout the weaving process. However, loom types B, C, and D all have cross sticks in the warp in order to keep the cross in it. I have indicated throughout this thesis that loom types C and D are relatively new to Sulawesi. This would indicate that the Sa'dan Toraja loom type A is the earliest loom out of all four loom types found on Sulawesi. A loom with a coil rod is considered an old type loom by Bolland (1971). She

states that such looms make sacred textiles, especially when using cotton as the weaving medium. Further research in other parts of Indonesia is necessary to locate the Sa'dan loom more precisely in the range of technical possibilities offered by the backstrap loom. More comparative research would help to classify the Sa'dan Toraja loom.

Through field research I gained an understanding of, and experienced, the meaning of weaving in its socio-cultural context by observing and participating in the weaving of Sa'dan Toraja textiles in Sa'dan Toraja. It was necessary to conduct ethnographic fieldwork in To'Barana', otherwise I would not have achieved access to the weaving and warping data that I describe in this thesis.

Appendix I

Textile Types

1. Pa'bunga bunga: supplementary warp*
2. Pa'ruki: supplementary weft
3. Pa'ramba: multi-coloured striped selvages with plain white centre
4. Pa'dure' dure' and pa'borong: multi-coloured stripes
5. Pa'miring: black, red, and whited stripes with plain white centre

*only woven in Sangkombong.

Glossary I

Sa'dan Toraja/English

alang - rice barn

aluk - ritual

aluk rampe matallo - ritual of the east, the living

aluk rampe matampu' - ritual of the west, death rituals

aluk to'dolo - the way of the ancestors

ambe' - father

anak diarak - foster child

balusu' - pure

barana' - banyan tree

bobo - rice

dodo - tubular skirt

lantang - temporary shelters for ceremonies.

lembang - cluster of villages, canoe

ma'a - resist textile, heirloom cloth

ma'badong - a ritual song and dance for the dead performed at funeral ceremonies

nene' - ancestor, grandparents

pa'rapuan - ramage

puang - highest ranking noble

rambu tuka - smoke rising

rambu solo - smoke descending

rapu - ramage, family

sa'dan - sacred

sarita - resist textile, heirloom cloth

sendana - sandalwood tree

seppo' - sirih pouch, bag

sekong - stylized

siri' - honour/ shame

tjapio - sirih pouch, bag

to' - clustered strands, place

to - person

To'Barana' - the place of the banyan trees

to' parenge - adat leader of village

tondok - community, settlement

tongkonan - ancestral house

Glossary II

Indonesian/English

adat - religious and social customs and rules

beras - husked rice

bupati - regent

camat - district chief

datu - ruler

desa - group of villages

ikat - a resist tie and dye technique

kabupaten - regency

kecematan - district

nasi - rice

obyek wisata - tourist destination site

padi - rice field

sarong - tube skirt

sirih - betal nut chewing with tobacco leaf, stem and lime

songket - supplementary weft

wisma - guest house

Glossary III

Weaving Terms in Sa'dan Toraja/English

anak mesa - warping peg on frame

anak pangka - warping peg on frame

api - cloth beam

balida - sword

dai tandiyan - process of putting warp onto loom

doke doke - pattern heddle rods

dorianna - warp

kala' - heddle cord, string

kabe - weaving gesture, shifting shed roll to create natural shed

kaberan - shed roll

kalaran - warping peg on frame that the heddles and cross are made on

lao - errors or irregularities in warp

limuluan - coil rod

ma'karidik - process of winding yarn onto bobbin

ma'renden - process of warping

ma'tombe' kala' - to add long heddles during the warping process

pa'karidirsan - bobbin with weft yarn on it

pakan - weft

palidaran - warp beam

panata- cross sticks

pangurean - spool holder

renden tanun - warping

sangka - temple

sitopo - sticky warps

sorong - weaving gesture for lifting heddle rod

talikuran - backstrap

tingke kala' - heddle rod

tinti' - weaving gesture when lifting heddle rod

tintian kala' - heddle kala

tompoan - blocks of wood feet rest against in order to hold tension in warp

torak - shuttle

tu'tun - warping frame

ulung - tie that holds the backstrap onto the cloth beam

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